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The Macintosh™ Magazine



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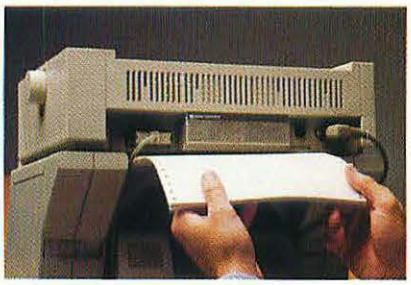
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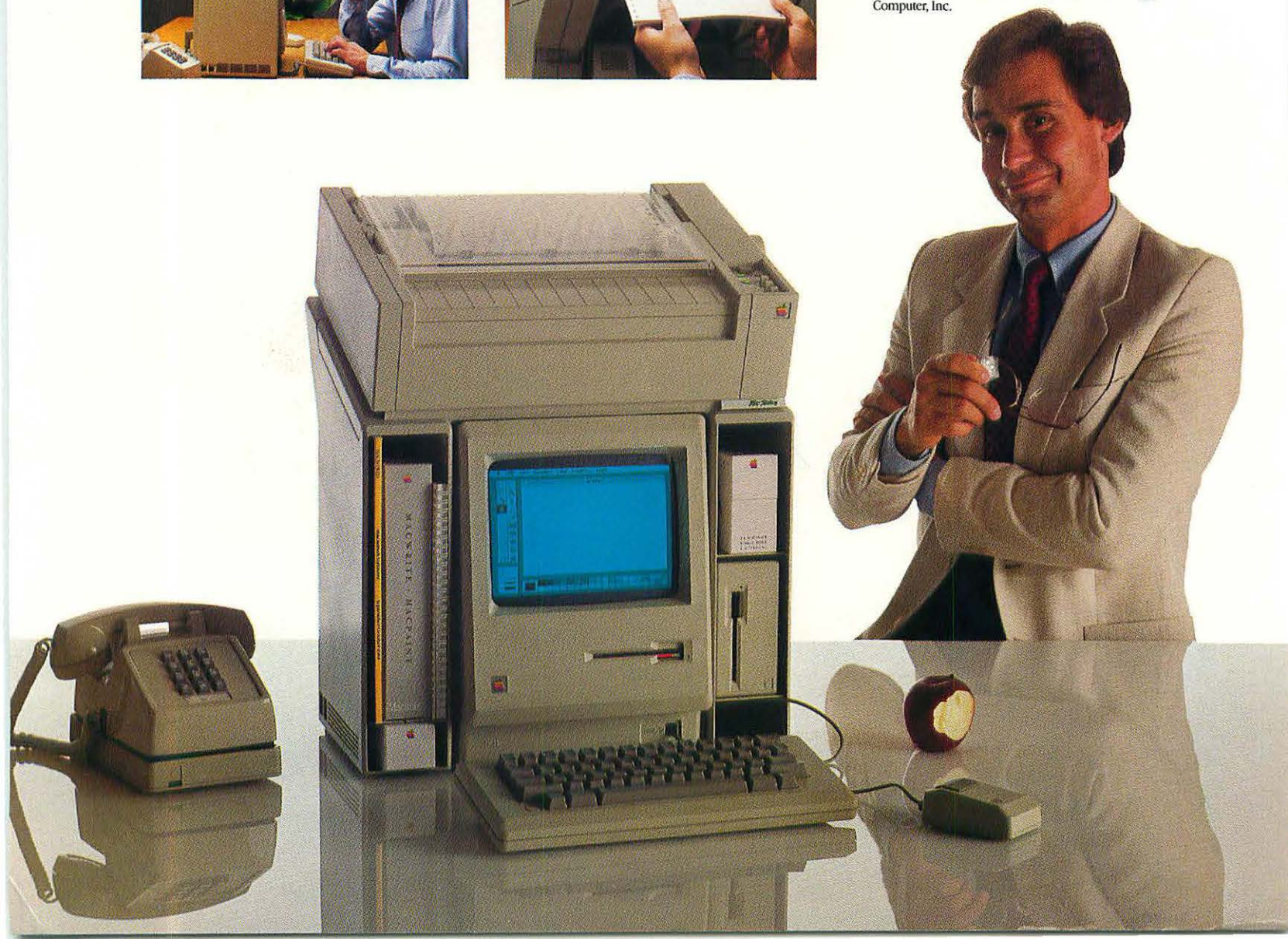
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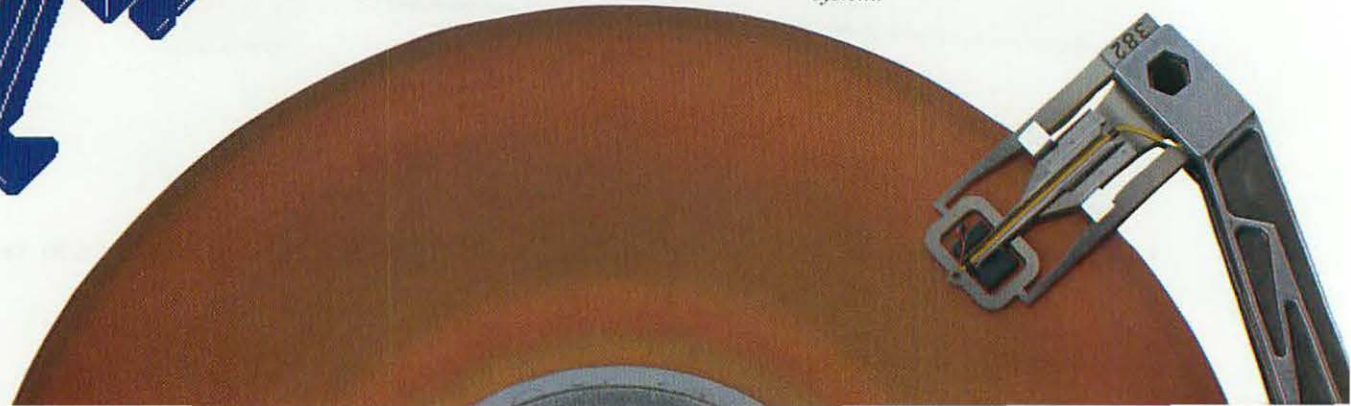
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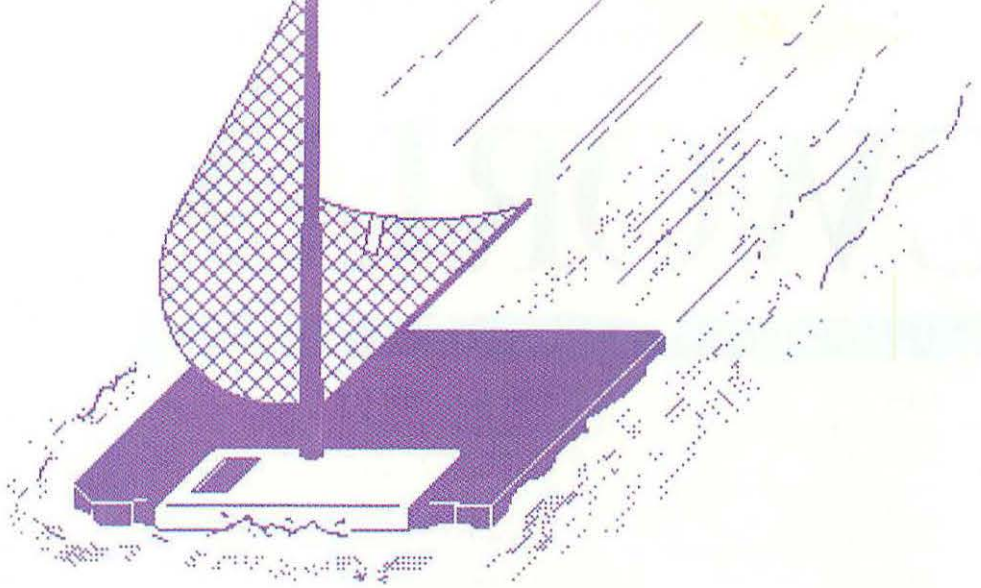
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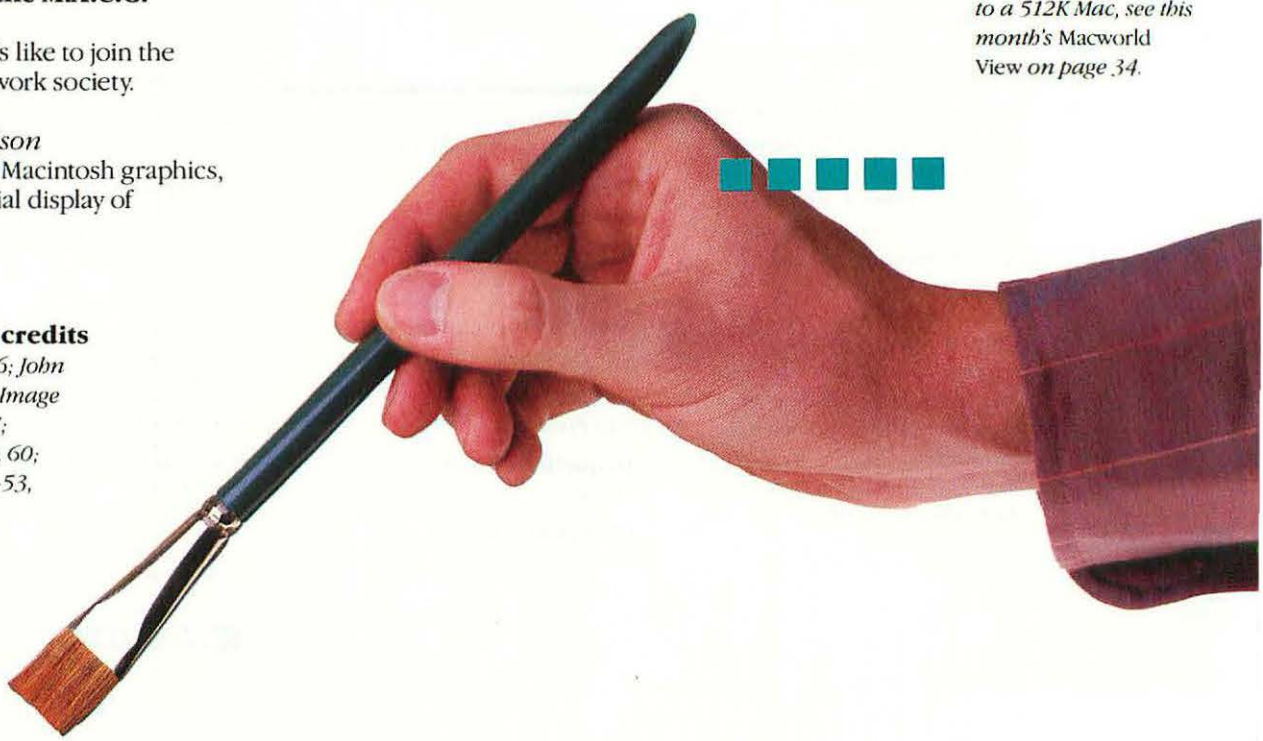
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Volume 1, Number 6
December, 1984

Macworld™ (ISSN 0741-8647) is published monthly by PC World Communications, Inc., 555 De Haro St., San Francisco, CA 94107. Subscription rates for the U.S. and Canada are $30 for 12 issues, $50 for 24 issues, and $70 for 36 issues. Canadian orders must be paid in U.S. funds. Outside the U.S. and Canada subscriptions must be prepaid in U.S. funds with additional postage at $12 per 12 issues for surface mail or $60 per 12 issues for airmail. For subscriber service questions call 800/247-5470 (in Iowa 800/532-1272) or write: Subscriber Services, P.O. Box 20300, Bergenfield, NJ 07621. Application to mail at Second Class pending at San Francisco.
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Editorial and business offices: 555 De Haro St., San Francisco, CA 94107, 415/861-3861.
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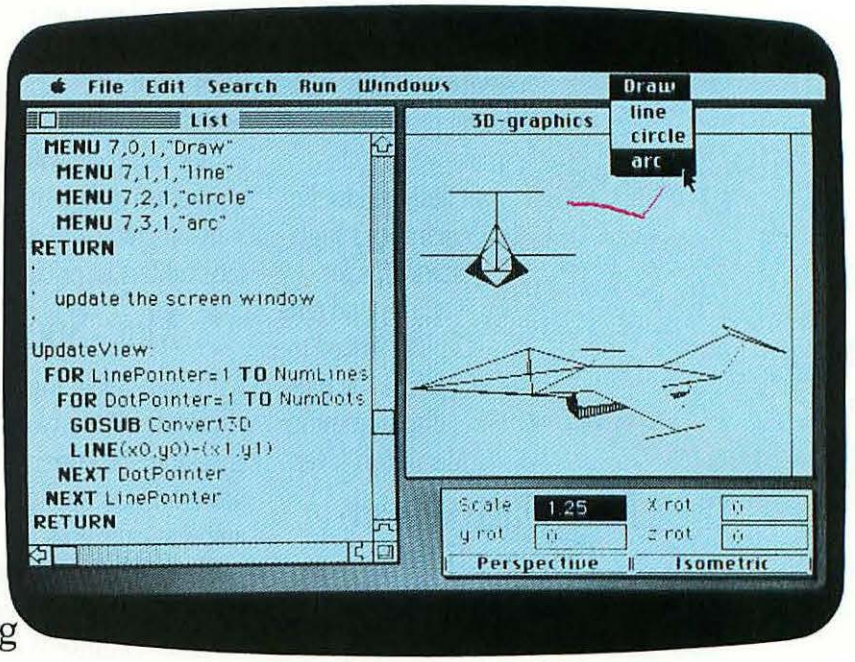
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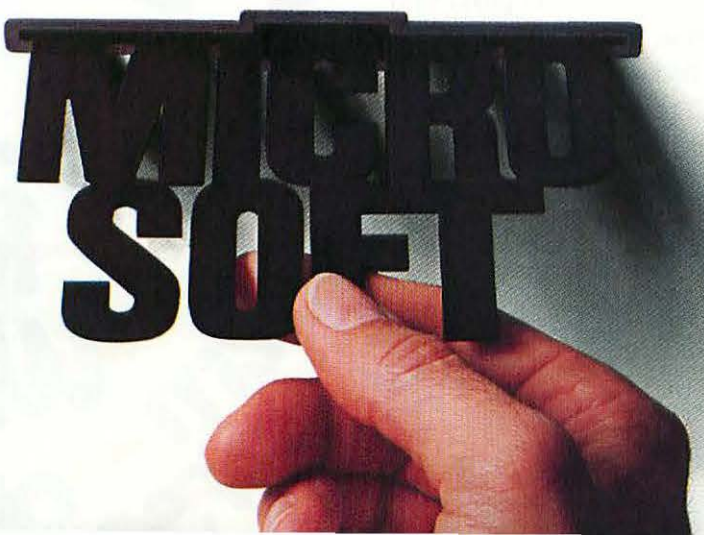
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for MacMania.™

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*The Mac • Epson • Connection supports a wide range of printer models from Epson, including the FX 80 and 100, the RX 80 and 100 and the LQ1500.

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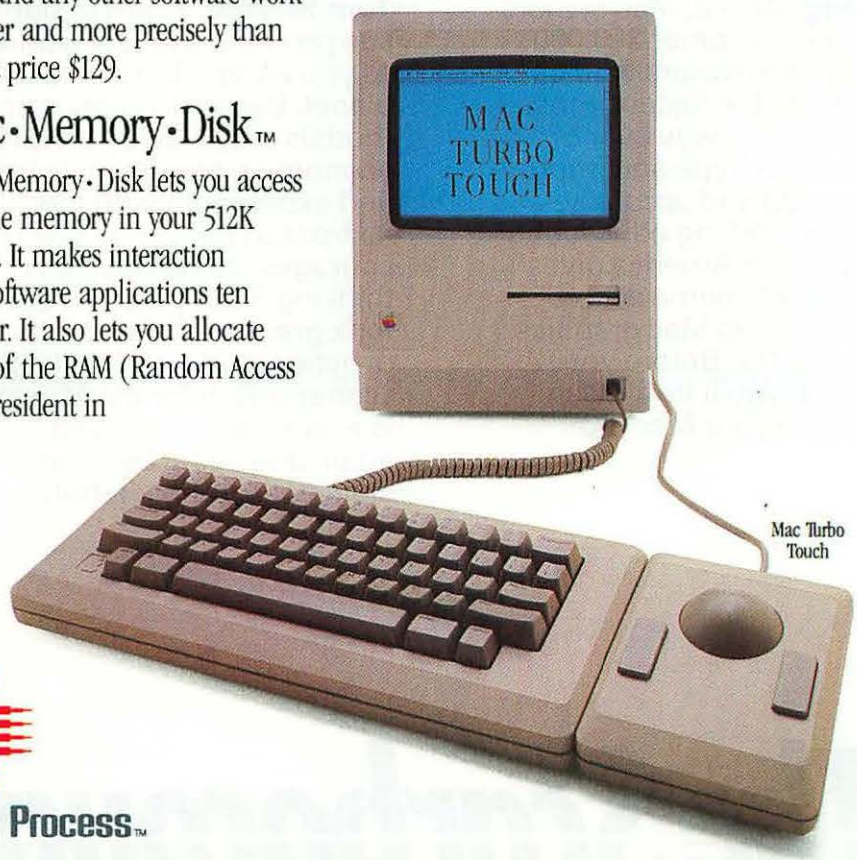
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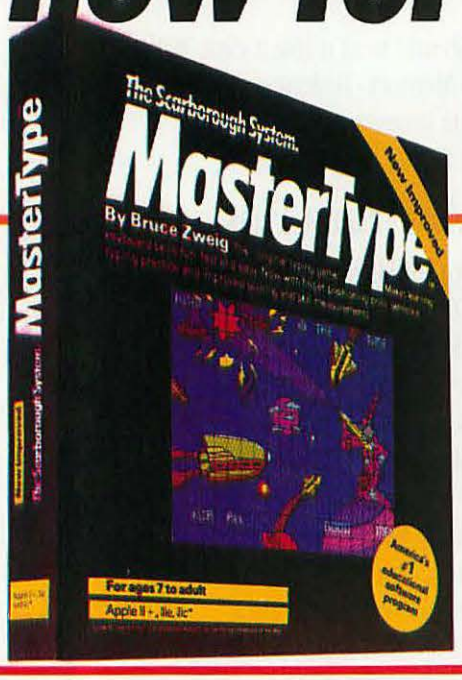
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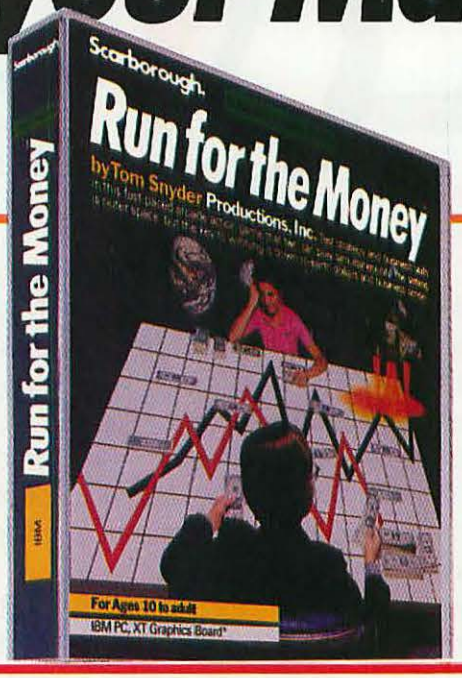
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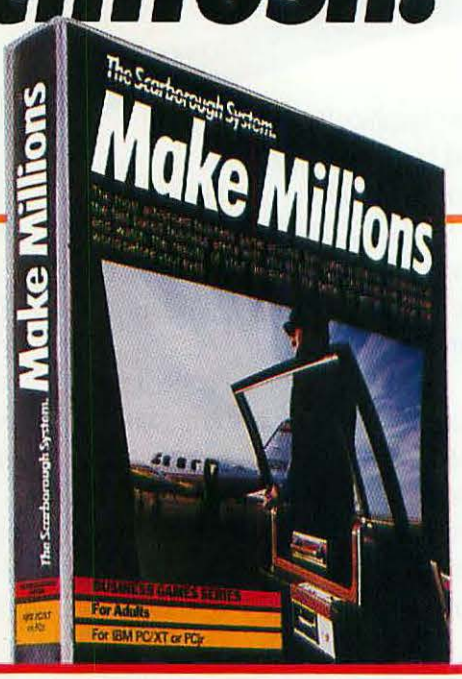
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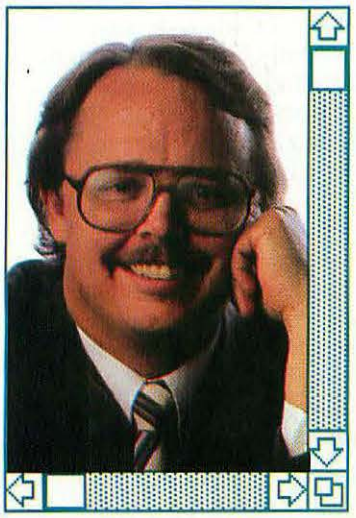
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David Bunnell

The Macintosh Is Here to Stay

The Macintosh has established a new standard in personal computing



Thousands of Macintosh users have found that the Mac is an indispensable tool for business, education, and recreation. Yet many computer journalists and would-be personal computer gurus still question the Mac's ability to survive in the competitive personal computer market.

As the publisher of *Macworld* and its older sister magazine, *PC World,* I attend most of the major personal computer trade shows, conferences, and other events. Because I have broad experience in the industry, I'm amazed that the Mac is still questioned. It seems so obvious that the Macintosh has arrived. Over the past nine months, the Mac has clearly established itself as a successful alternative to the IBM PC. The steady increase in hardware accessories and software is reflected in *Macworld*'s impressive increase in ad pages. Our first issue (February) contained only 18 pages of ads, our fifth issue (November) had 80 pages, and this issue has 100—not a bad track record for a doomed machine.

Most computer magazine publishers will not look back on 1984 as one of their best years. Several publications, such as *ST.Mac, Softalk* for the IBM PC, *List, Personal Software, PC Age, Digit,* and *Jr,* have fallen off the rack and retired to archival heaven. Practically all computer magazines have experienced a dismal decline in advertising and newsstand sales.

And yet, in the midst of this publishing depression, *Macworld,* which owes its lifeblood to the Macintosh, has been the most successful computer publication of the year. We have achieved astonishing "sell through" in computer stores and on newsstands, while other magazines watched their sales drop to 15 percent of the market or less.

Of course, our success as a publication doesn't rest solely on the Mac's success. We are compelled to consistently deliver easily accessible, useful, and timely information to new and advanced Macintosh users—and to deliver that information in a package that is not only appealing, but on occasion downright beautiful. So far, our readers have voted us the number one publication covering the Macintosh. And they have placed enough faith in the Macintosh to establish it as a new personal computer standard, an equal to the IBM PC and the Apple II.

Unfortunately, computer critics tend to predict with blinders on. They can't understand why the Macintosh sells so well, and they continue to

moan about the lack of software for the machine. Actually, a wealth of exciting software is available for the Mac, and tons more is coming.

The 60,000 Macintosh users who bought their machines during the Mac's first 100 days are a select group. As the first people to adopt the Mac, they have often had to wait for promised innovations such as application programs, second disk drives, hard disks, and 512K of memory.

But such is the price of pioneering. The first IBM PC buyers suffered similar experiences. The operating system kept changing, the PC's first word processing program by IBM, *EasyWriter,* was initially confusing and full of strange bugs, and even the first release of *WordStar* for the PC was disappointing. Critics claimed that the PC would never have enough software. The CP/M operating system was more widely accepted than PC DOS, and the PC's expanded memory was of little importance. Sound familiar? Instead of building on an existing standard, IBM had the nerve to think it could replace CP/M with PC DOS.

Two years later Apple decided it could counter the notion that all new personal computers had to be IBM compatible. The Macintosh was conceived not so much as a computer but as a desktop appliance with an intuitive user interface based on the mouse and pull-down menus. Had the Mac been PC compatible, it could not have possessed two crucial features–a small footprint and great graphics.

The Macintosh fits conveniently on most desktops with room to spare for the odds and ends of office work. In comparison, the IBM PC is a small tank. Since personal computers are starting to replace much traditional desktop paper work, they must be accessible. Like a telephone, a personal computer should always be within reach–but not so reachable that you trip over it every morning.

The Mac's super graphics can enhance business reports and papers with charts and sketches. And by making everything print out as it appears on the screen, the Macintosh adds a new dimension to personal computing. Once you get a taste of the Mac, computing is never the same.

In many ways, the Macintosh is more revolutionary than the IBM PC was in 1981, because existing personal computer software cannot be easily converted for the Macintosh. Many of the PC's most popular programs were borrowed from the CP/M days, including such favorites as *WordStar* and *dBASE II.* Because the Mac's user interface is radically different from preceding interfaces, restructuring software for the Macintosh is extremely difficult. However, when designed successfully, Macintosh software is usually of higher quality.

Because of these technical limitations, the Macintosh software base can't possibly blossom as fast as the IBM PC software base. Computer journalists who fail to recognize the Mac's distinctive qualities can easily make premature, negative declarations. To write great Mac software, programmers have to first abandon the piano for the violin, learn to play new music, and bring out a new sound. Just as it takes time to compose great music, it takes time to create good software. So just give the Macintosh a little time! It demands the best. □

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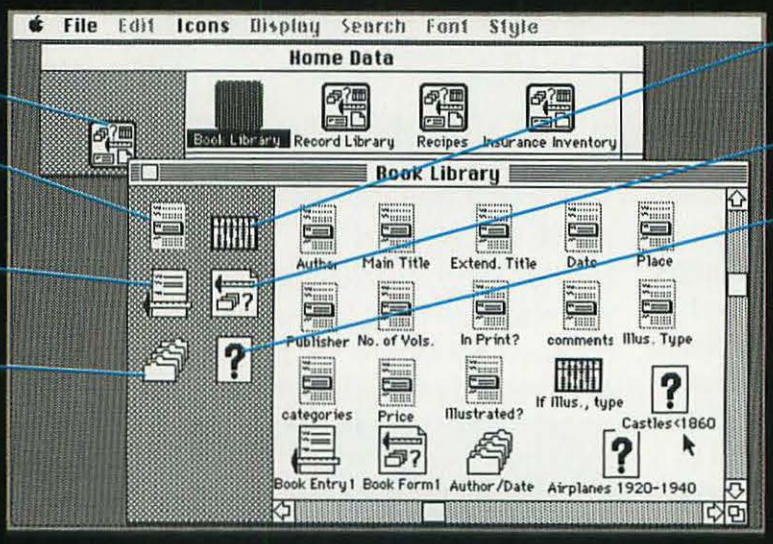
With **Odesta Helix**, you can model worlds of ideas, things, and relationships, and watch them live and interact upon your desktop. **Odesta Helix** is a new program – not an old program made to work on a new machine. It takes a new approach – letting **you** define and control the shape and form of information according to your own needs and style. **Odesta Helix** gives you a rich and powerful set of visual tools that lets you begin working immediately, without having to learn a programming language or battle with the restrictions of "spreadsheet" type thinking.

Relation icon to set up different "data bases"

Field icon represents types of information

Template icon for constructing and changing forms

Index icon lets you get at things in whatever order you want



Abacus icon for setting up calculations and relationships

Form-view icon pulls everything together

Query icon lets you do interactive searches

Odesta Helix uses icons (visual symbols) to represent ideas, relationships and functions as **objects** that you can easily manipulate. Create them by clicking on the icon-wells on the left, and dragging them to your desktop. Each opens to reveal deeper and deeper operations and values that may be invoked and shaped with the click of a mouse button.

Odesta, 5186 Doolittle Drive, Northbrook, IL 60062 (USA)
(800) 323-5123 In Illinois, (312) 498-5615

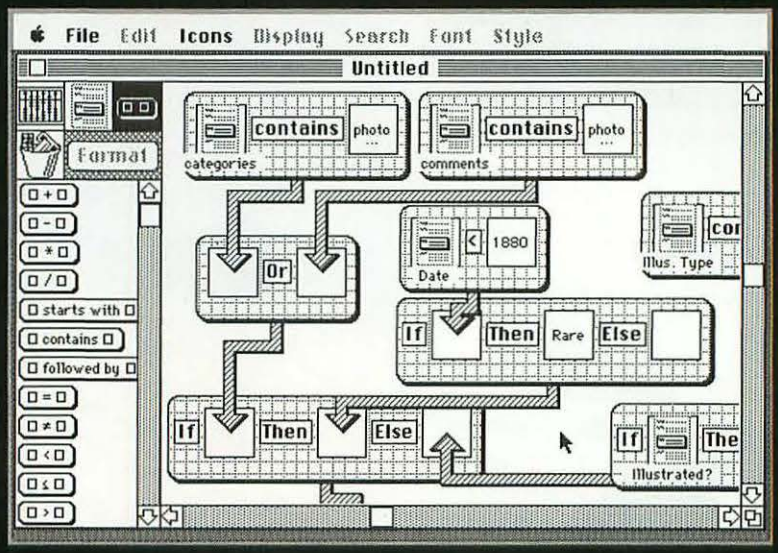
Apple, Lisa, and Macintosh are trademarks of Apple Computer, Inc. © 1984 ODESTA

Circle 13 on reader service card

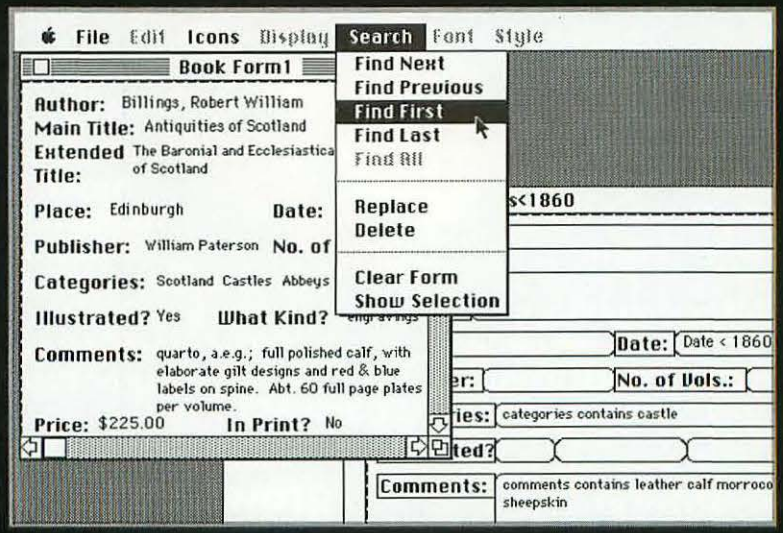
Odesta Helix™ & Macintosh™

The Next Step.

Tiles act as arithmetic, text, Boolean and date operators, functions and values.

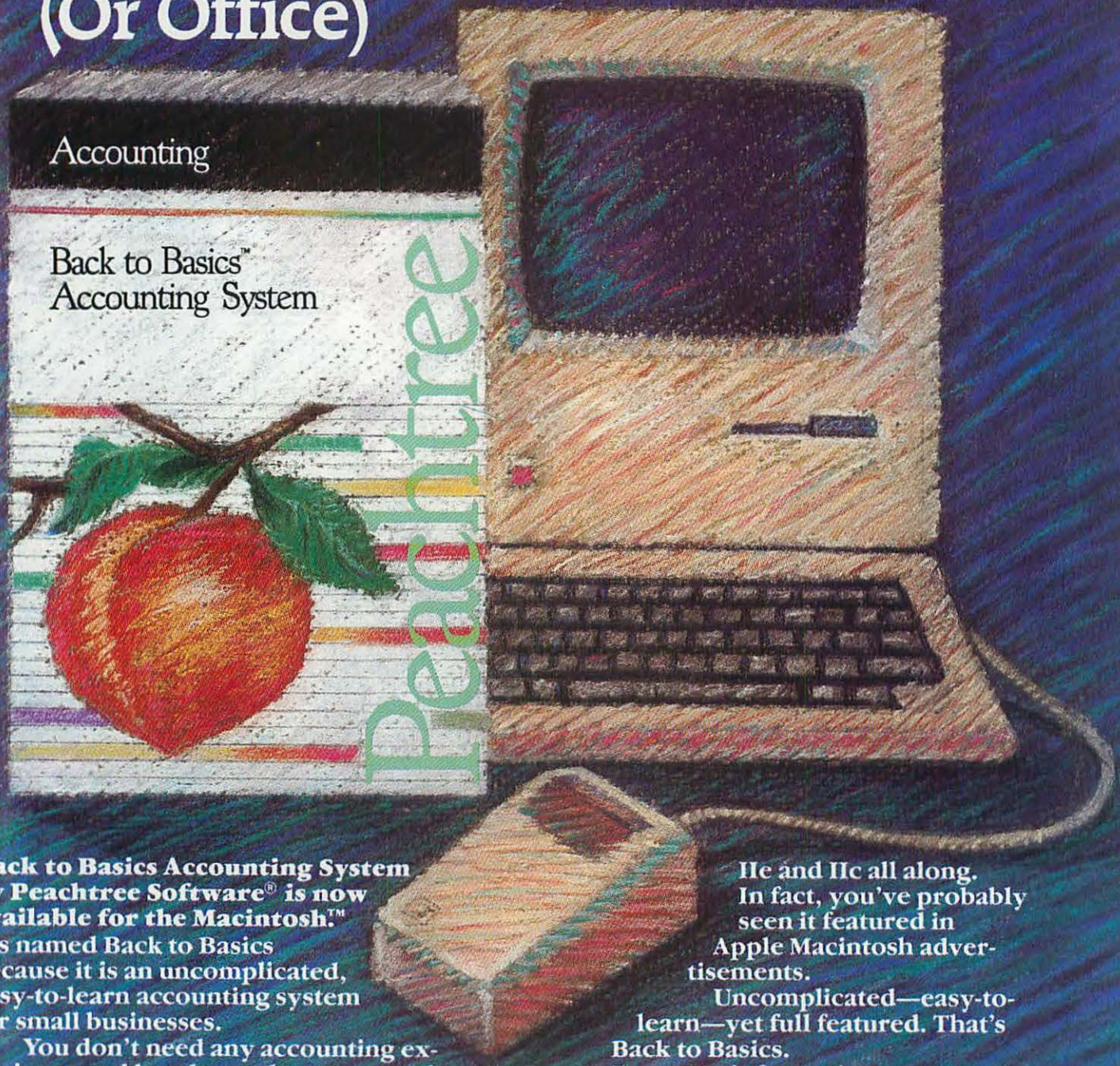


Visual building blocks let you set up even the most complicated statement or calculation and use it whenever you want to. Drag tiles out from the list at the left. Drop icons into the tile holes, or type in numbers or text. Connect the tiles by pulling arrows around. This whole calculation is represented by a single abacus icon that may be used on any form, and you may make up as many as you feel like.



Here is a form-view being used in conjunction with an interactive search form (query icon titled "Castles< 1860"). One aspect of the radically innovative design of **Odesta Helix** is that you can enter, query, edit, and print information all from one window – without having to shift from one mode or application to another. Another reflection of this dynamic design is that if you make a change in one window, you see the result pop-up in any open related window.

Introducing Accounting For Those With A Mouse In The House. (Or Office)



Back to Basics Accounting System by Peachtree Software® is now available for the Macintosh.™ It's named Back to Basics because it is an uncomplicated, easy-to-learn accounting system for small businesses.

You don't need any accounting experience and barely need any computing experience. The straightforward manual teaches both accounting and computing at the same time.

But make no mistake. This is a full-featured series of interactive products including General Ledger, Accounts Payable and Accounts Receivable.

The first business accounting system for the Macintosh, Back to Basics has been enjoyed by owners of Apple® II+, IIe and IIc all along. In fact, you've probably seen it featured in Apple Macintosh advertisements.

Uncomplicated—easy-to-learn—yet full featured. That's Back to Basics.

For more information, contact your local dealer or Peachtree Software, 1-800-554-8900.

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The Vows of Software Development

For software developers, the Mac is both irresistible and frustrating



Computer manufacturers know that the more programs run on their computers, the more computers they can sell. But only Apple has turned this idea into a religion. In fact, one employee in the company even has the job title "Software Evangelist." He has worked since before the Macintosh was announced to make software developers into Mac disciples.

Perhaps no easier job than that of Software Evangelist ever existed. The Mac could probably have done its own proselytizing. All the Evangelist had to do was carry the 19-pound wonder from developer to developer, making sure everybody signed a confidentiality agreement in return for a chance to see and use the computer.

At Broderbund Software, cofounder Gary Carlston recalls the day the Software Evangelist came to call. Although Broderbund's programmers had been doing their jobs, it seemed to Carlston that they were getting a little bored with the existing crop of computers. But when the Evangelist came by and showed them the Mac, the programmers all "started wagging their tails."

Elsewhere the reactions were similar. Programmers reached behind their IBMs, Apple IIe's, and Commodores and flipped off the power. Then they took out ballpoint pens and started filling out forms to petition Apple's Certified Developer Program for membership.

Software developers who qualify for the program receive hardware and software tools at a sizable discount. The discount is an important benefit because both a Lisa and a Mac are required for programmers to create commercial quality software.

Certified Developers also get something more crucial than discounts on hardware and software: the chance to ask questions. They can attend seminars and apply for admission to an inner sanctum, the Registered Developer Program, which allows them a direct phone line to Apple's technical experts.

When the mail sacks bulging with applications started arriving at company headquarters in Cupertino, the Developer Relations staff saw that devotion to the Mac was indeed spreading fast. The amount of interest was almost alarming. Far more people wanted to be Certified Developers than Apple could likely cope with.

As the months passed, the Mac continued to serenely draw ovals and polygons, stretch them this way and that, and fill them with pretty patterns. Observing the computer closely, Apple's Developer Relations people decided that the machine must be contemplating the paradox that was also on their minds. If everybody was writing software for the Mac, why were so few programs actually available?

The answer, of course, is that creating software for the Mac is harder than most people expected. For starters, the user interface requires a different approach to writing programs than for other personal computers. Even converting existing software running on other machines is tricky and inordinately time consuming. To overcome these difficulties, many programmers developing software for the Mac need more than the right hardware and software. They need technical advice from the source.

Faced with literally thousands of applications to the Certified Developer Program, Apple had to make a hard deci-

sion. It could either try to help everyone and spread resources too thin, or it could concentrate on the companies with the best prospects for quickly getting programs on the market.

Naturally, Apple chose the latter course. The Certified Developer Program requires would-be developers to describe their experience in marketing software. Applicants have to tell Apple their plans for providing technical support for their programs. They must describe their experience in preparing user manuals and documentation. They must also send Apple a business plan. Developers who can't provide satisfactory information are not accepted into the program.

All this information is reasonable to require of any company that intends to market its software on a commercial scale. But what about the thousands of "small developers," the bright college students, kitchen table hackers, and other inventive spirits who, in addition to lots of third-rate junk, continue to come up with exciting new programs?

These people don't write business plans, nor do they know much about marketing software. They take their creations to a software publisher and let the publisher worry about the rest.

I was talking about the Macintosh software problem with a market researcher. "The Mac will never get 10,000 programs unless Apple finds a way to make life easier for the small developers," I worried out loud.

The market researcher seemed unconcerned. "Nobody can use 10,000 programs anyway," he said. "150 is more than enough. It's just as well to keep the junk off the market."

His point of view is not uncommon. It's true that a relatively small number of titles accounts for the bulk of the software that gets sold. But the promise of the Macintosh is to bring new people into computing. Achieving this promise requires that there be a smorgasbord of software to match the diversity of people's needs and interests.

To me, saying that 150 programs is more than enough is like saying we don't need libraries with thousands of books. Many library books, of course, rarely get checked out, for the simple reason that for most people they're not worth reading. But you never know when you'll find a gem.

People sometimes compare personal computers and the software that runs on them to other electronic equipment and media. The computer is like a television, they say, and the software is like a television show. Although these analogies make sense, they obscure one amazing difference between computers and other media.

With the personal computer, the same machine that runs the software can be used to create new software. It's as though the television that you use to watch last year's reruns could also create next year's hit comedy. And many computer users, unlike most television viewers, are involved in creating for their medium.

All in all, the Mac's first year hasn't been an easy one for software developers, but things are looking up. Languages and utilities are becoming available that will let programmers develop software without the Lisa. And entrepreneurs are taking the initiative to make sure that "technical difficulties beyond their control" don't stall their programming efforts.

In Los Gatos, California, William Parkhurst thought that other people besides himself might be having problems with getting their Macintosh programs off the ground. Through a group called the Software Entrepreneurs' Forum, Parkhurst and others began meeting on a biweekly basis to share tips and techniques (see *Macworld View* in this issue).

The meetings grew fast and attracted the interest of the Apple Software Evangelist, who jumped at the chance to provide technical assistance to a group of 40 developers, rather than attempt to work with each one individually. As a result, the group now gets the help it needs from Apple.

As the Mac's popularity grows, so will the number of small software developers. Forming groups like the Software Entrepreneurs' Forum is one solution for those who aren't admitted to the inner sanctum. After all, even if the Software Evangelist can't help all such groups, neighborly aid may provide the answers. □

Ted Nace, a freelance writer in the San Francisco Bay Area, is writing a book on software marketing for Microsoft Press.

MegaMerge is here!

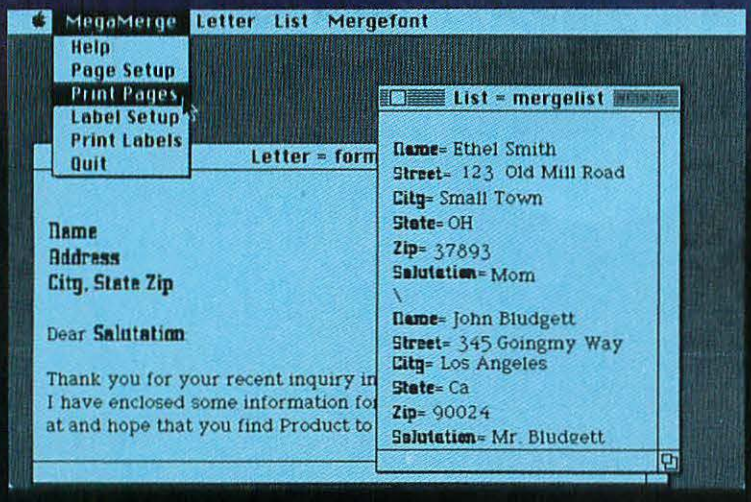


Megahaus proudly introduces MegaMerge...one of their many software products for the Macintosh that's available right now!

MegaMerge works hand-in-hand with Apple's MacWrite to:

- Create full mail list merging
- Print your mailing labels
- "Chain" your documents together so they print as one long document

With MegaMerge and MacWrite working hand-in-hand, you'll also be able to print hundreds of form letters to everyone on your mailing list and include standard "boilerplate" in all your contracts, letters, reports and other documents.



Chances are, if you now own Apple's Macintosh, you'll already have MacWrite. So why not take full advantage of Macintosh's technology with MegaMerge right now?

MegaMerge will work wonders for the Macintosh... and your business.

We'll even shake on it.



Megahaus has an entire family of software products for the Macintosh!

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MOUSE MEETS MODEM.

The first mouse wanted a modem that would be very Macintosh-like. Icons and all.

The second mouse wanted a modem that could talk to its brothers at IBM.

The third mouse wanted a modem that could take over while its owner was sleeping.

The fourth mouse wanted a 1200 baud modem that could be inexpensively upgraded to 2400 baud.

The fifth mouse wanted a modem that worked error-free on anybody's phone service, even the discount ones he was afraid to use.

A difficult series of requests, to be sure.



But not impossible.
Because today, there is a modem that will make your mouse very, very happy. It's called MACMODEM. It's made just for the Macintosh. And it's the only modem that can satisfy mouse 1, mouse 2, mouse 3, mouse 4 and mouse 5.

Two clicks and your mouse will be in and out of your favorite data base with exactly the information you want. A job that takes an awful lot of clicking and keystrokes with any other modem.

To see it in person, visit your local Apple dealer and ask for MACMODEM. If he hands you something else, don't go for the bait. Call 1-800-322-3722. Microcom, Inc., Norwood, MA 02062.

MACMODEM™
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MACINTOSH IS A TRADEMARK OF APPLE COMPUTER, INC.
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MACMODEM AND MICROCOM ARE TRADEMARKS OF MICROCOM, INC.

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MegaFiler is here!



If you own, or are about to purchase an Apple Macintosh, then you'll definitely want MegaFiler from Megahaus Corp.

MegaFiler takes **full advantage** of Macintosh technology from "A" to "Z" which, in turn, helps you create a file management system second-to-none!

MegaFiler will give you:

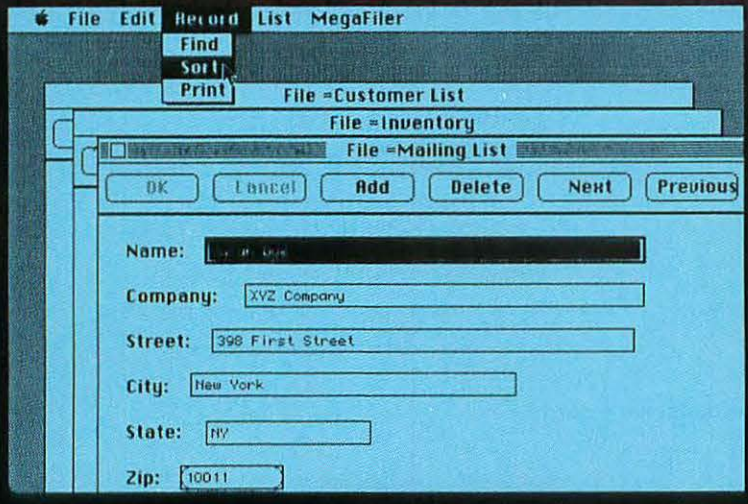
- Full windowing capabilities
- Total use of desktop accessories
- Complete and accurate editing commands
- Multiple file access
- Complete hand-in-hand compatibility with Apple's Macintosh

MegaFiler also comes with a complete library of ready-made files that will provide a miriad of applications such as:

- Mailing lists
- Sales records
- Business inventory
- Home inventory
- Stocks
- Customer orders

In addition:

- Its 'file designer' lets you create your own custom files that can contain virtually unlimited fields arranged in any way you like!



- It works with our own MegaMerge, MegaForm and Apple's MacWrite to create alphabetized mailing lists and forms!
- You'll have access to full searching and sorting capabilities!
- You'll have multiple file access!

When you consider all of the MegaFiler benefits, doesn't it make you wonder how you could even get along without MegaFiler? Why not call the Apple dealer nearest you for a complete demonstration.

He'll make a believer out of you.

Megahaus has an entire family of software products for the Macintosh!



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Your search for the ultimate fantasy has just ended. Presenting...

Legacy

Where fantasy becomes reality.

Legacy creates a world that is so realistic, at times it may not seem like a game at all.

As a young magician, you begin a quest in search of a mystical orb which is believed to be located in a legendary castle. You control your actions through commands which are in the form of full English sentences. Only a cunning, resourceful player will be able to overcome the life-threatening obstacles that block his path.

The special features of **Legacy** make it an incredibly realistic adventure. These include the most detailed graphics to ever appear in an adventure game, full-sentence command acceptance, and rich descriptions of the surrounding scenery. Created for you by a team of graphic artists, writers, and programmers, **Legacy** promises to be the most fascinating fantasy you'll ever take part in. For an entertaining adventure in a magical world, embark upon the perilous journey that awaits you in **Legacy!**



We turn fantasy into reality.

CHALLENGER SOFTWARE

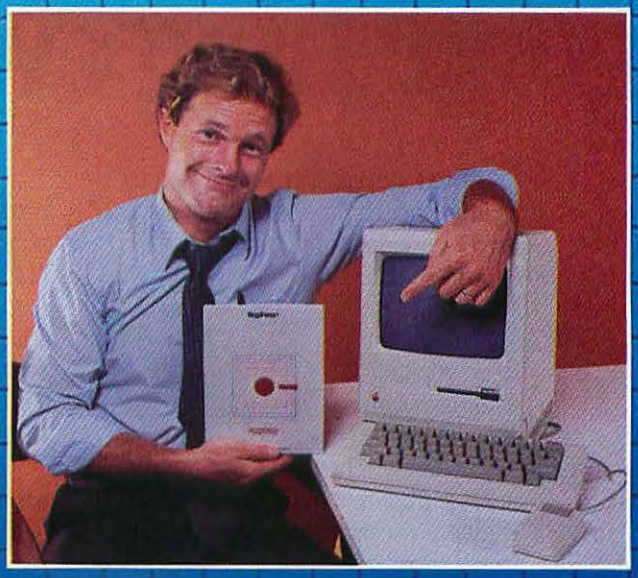
18350 Kedzie Avenue
Homewood, Illinois 60430
(312) 957-3475

A two-disk Macintosh adventure—suggested retail price $39.95

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MegaForm is here!



Do you fancy yourself as a designer?

With MegaForm working hand-in-hand with your Macintosh, you'll be able to design any kind of a form that fits your needs...**easily**!

MegaForm is a totally new kind of program. It's like a spreadsheet, graphics package, database, forms generator, and report generator...all rolled up into one!

MegaForm lets you design and create any kind of form you like, such as: ● **Invoice Forms.** ● **Order Forms.** ● **Special Report Forms** and more! These forms can also include any kind of graphic image you like, even pictures you've created with MacPaint and MacDraw!

Once you've designed the form, you can tell MegaForm to automatically fill out the form using information stored in your MegaFiler database.

MegaForm is powerful enough to make MegaFiler a relational database!

Plus, MegaForm gives you all of these other advantages:

- Full use of the Macintosh environment, including windows, fonts, icons, desktop accessories.
- Sequentially numbers your forms and stores them for future reference.
- Automatically calculates information like a spreadsheet.
- Prints multiple copies of your forms — each with a different title.
- Gives you several ready-made forms that you can use right away.
- Gives you a selection of business graphic designs to include in your forms.

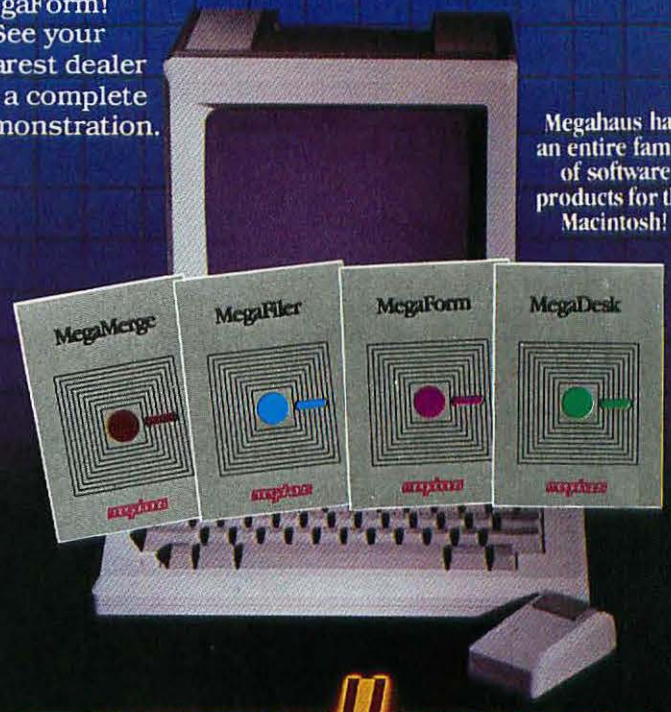
If you're planning to purchase, or if you already own a Macintosh, you'll be amazed at what it will do with MegaForm!

See your nearest dealer for a complete demonstration.

Invoice **XYZ Corporation** **No:** 27812

John Doe 123 Main Street #10 Los Angeles, CA 91001	Date: August 30, 1984 Invoice No: N3982 Customer No: 4093

Qty	Description	Unit Cost	Total
12	MegaMerge	125.00	1500 00
9	MegaWriter	99.95	899 55
Total			2399 55
Tax			143 97
Amount Due			2543 52



Megahaus has an entire family of software products for the Macintosh!

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Maccessories™ make a good thing even better.

The Macintosh™ is easy to use. Maccessories from Kensington Microware make it easier.



First in the Maccessories family of enhancement products is the **Swivel.** A slim swivel base that attaches underneath the Macintosh, making it easier to reposition the computer. It goes everywhere the Macintosh goes, even inside the carrying case.

The **Surge Suppressor** is a replacement power cord, providing UL listed surge suppression and line noise filtering for the Macintosh. It fits easily into the carrying case, so your Macintosh is protected no matter where you take it.





There are two antistatic **Dust Covers** in the family. One protects your Macintosh and keyboard. The other takes care of your Imagewriter.

Leave your delicate, intelligent modem at home. The **Portable Modem** is the perfect traveling companion for the Macintosh. It's small, sturdy, battery powered, weighs less than a pound and even has its own carrying case. The Portable Modem operates at 300 baud with any communications software.



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KENSINGTON™ MICROWARE

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Apple, Macintosh, Imagewriter/Apple Computer Inc.
Fonts by Xiphias © 1984 Kensington Microware

The **Control Center,** styled to fit underneath the external disk drive, provides fingertip control over your whole system. There's a master switch to power the whole system on and off, and separate switches for a printer, modem and one auxiliary device. It also protects your whole system from power surges, line noise and static shocks.



The **Universal Printer Stand,** for the Apple® Imagewriter,™ also fits most other dot matrix printers. It raises your printer 1½" from the desk at the front and 4½" at the back, an angle that allows you to monitor your printer's performance more easily. By raising your printer a few inches from the desk, the Universal Printer Stand solves the problem of where to store your paper. Several hundred sheets are accommodated neatly underneath.





The **Disk Case** provides safe storage for 36 Macintosh disks. And it comes with a handy packet of spare disk labels.



There is more to Maccessories than hardware.

Maccessories Graphic Accents for Business is a collection of business icons. Use them to illustrate reports, design letterheads, spice up memos, or create invitations.

Maccessories Type Fonts is a series of type fonts in sizes of 15 point type and larger. Perfect for headlines, bulletins, anywhere you need a larger typeface. Each disk includes three fonts in various sizes and a selection of business icons.

Maccessories Quick Cursor is a Utility Program that allows you to designate any four keys or combination of keys on your Macintosh as cursor controls. You no longer have to take your hands off the keyboard while typing and fumble for the mouse just to move the cursor.

Available at Apple dealers everywhere. For more information contact Kensington Microware Ltd., 251 Park Avenue South, NY, NY 10010, 212-475-5200, Tlx: 467383 KML NY.



Letters

Discovering MacFORTH
As a new Macintosh owner, I was anxious to develop software for the Mac and was elated to find MacFORTH [see "The MacFORTH Dimension," November]. I'm currently using version 1.1 and find it to be well supported, well documented, and a joy to use. To programmers who haven't tried MacFORTH, I say that you're passing up an ideal tool for exploiting the power of the Mac. MacFORTH's speed, flexibility, and Toolbox routines make it an impressive language.

I also came across a bug in the Mac's desktop Control Panel. While the date is being set, the clock stops and loses time in the process. However, if the date is set in the Alarm Clock, the time is not affected. Apple should have caught this long ago.

Dave Hirsh
Oakmont, Pennsylvania

The Sinister Computer
The Macintosh is a breakthrough computer in many ways, one of which has yet to be mentioned in your pages. The Mac is especially friendly to left-handers. Naturally there are some right-sided characteristics that a left-handed person does not fail to notice. Disks are inserted on the right and the mouse port is on the right side of the back of the machine. However, left-handers can route the mouse around the back to the left of the machine (a *sinister* rearrangement that I enjoy doing to Macs at computer stores). They can use the programmer's switch (located on the machine's left side, thank you) to reboot the Mac when needed. Being able to use the mouse with the left hand allows the left-hander added (gulp) dexterity when working with the Macintosh.

But perhaps the detachable numeric keypad is the best touch of all for a southpaw. If the Macintosh had the same keyboard as the Lisa, the numeric section would be on the right. A left-handed person would be crossing hands as often as a pianist performing a Chopin étude. At least with a Mac the keypad can be located on the left side of the main keyboard, even though the crossed wires look a little awkward.

Paul Schroeder
Iowa City, Iowa

An Author's Reply
I must compliment Evelyn Spire on her unbiased review of the major Mac books on the market. I did note a few errors in her review of *Introducing the Apple Macintosh* by Ed Connolly and Philip Lieberman, which she compared to *The Apple Macintosh Book,* by Cary Lu [see "The Macintosh Between Covers," July/August].

Ms. Spire mentions that Cary Lu's book is the "only one up to date enough to be rid of the 'alternate disk' icon." A careful review of our book would have revealed that all the pictures and illustrations were up to date–reflecting the final production version of the Macintosh software, including the Finder.

The only known error in our book is the appendix on the disk utilities that were not included in the Mac at the last minute. I feel that with this exception (and a flipped illustration) the book is quite an achievement considering that it was the first one available for the Mac, beating all others to market by six weeks.

Our aim in writing the book was to share our excitement and enthusiasm with people contemplating the purchase of a Mac–not to provide a blow-by-blow description of the architectural trade-offs made by the machine's designers. For this information, I recommend the extensive and well-written technical information available from Apple.

Philip Lieberman
Los Angeles, California

We stand corrected.–Ed.

Software for Writers
About six weeks ago, I purchased a Macintosh, primarily to assist me in writing short stories and poems. I immediately found that it was far superior to any typewriter I'd known.

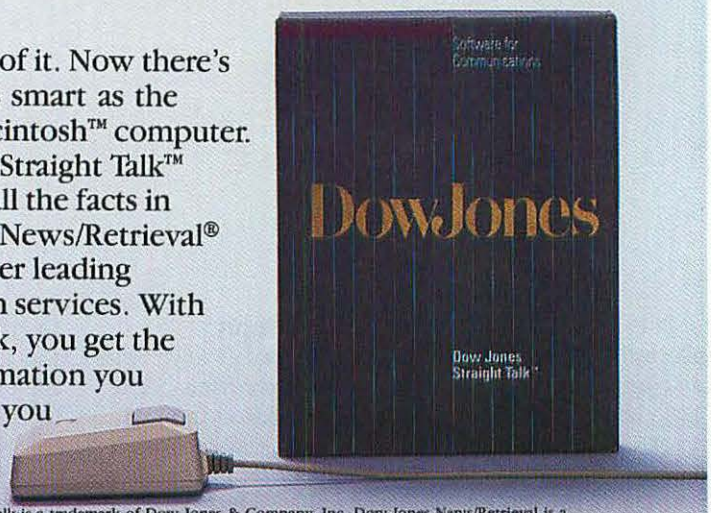
As computers have a tendency to do, the Mac jostled my imagination. I began to think of software for the Macintosh that would further assist writers. I would particularly like to see an on-line dictionary and thesaurus, a spelling checker, and a word counter. When I looked for these applications at local computer shops, I was told that they were currently unavailable. Do you know of any plans to produce such software?

Billy Moore
Zionsville, Indiana

Introducing Dow Jones Straight Talk™

Now there's smart software™ for the Macintosh.

Think of it. Now there's software as smart as the Apple® Macintosh™ computer. Dow Jones Straight Talk™ offers you all the facts in Dow Jones News/Retrieval® and the other leading information services. With Straight Talk, you get the exact information you need when you need it.



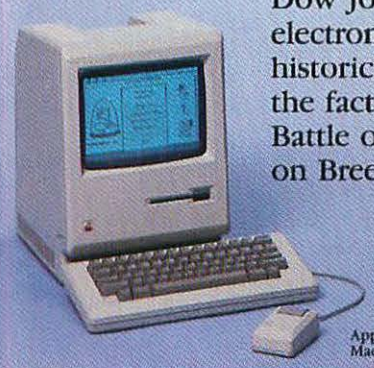
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Get an "A" on your Paper.

It's one o'clock in the morning. Your term paper on the American Revolution is due at 8 a.m. Where was the misnamed Battle of Bunker Hill *really* fought? It could be the difference between an "A" and a "B".

Now there's smart software™ for the Macintosh™ computer.

With Straight Talk, the smart software from Dow Jones, you can use an electronic encyclopedia to find the historical fact you need. Even if it's the fact that on June 17, 1776 the Battle of Bunker Hill was fought on Breed's Hill.



Dow Jones Straight Talk™

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The MacGAS *glossary and spelling checker, which includes antonyms and synonyms, is available from Applications Unlimited. Another spelling checker,* Mac Spell Right, *can be installed in disk-based* MacWrite; *a thesaurus is available for two-drive systems.* Mac Spell Right *can be purchased from Assimilation Process. For further information on* MacGAS *and* Mac Spell Right, *see* Macware News *in this issue.–Ed.*

More Software for Writers

I use a Macintosh and enjoy it immensely. However, I have noticed a few things that could be added to *MacWrite*.

When I was in graduate school, I wrote a lot of research papers that were footnoted. It is conventional to place footnotes at the ends of such papers because it is so difficult to place them at the bottoms of the appropriate pages. If a *MacWrite* "footnoter" were developed that was similar to the "footer" but unique to every page, writers could place footnotes on the pages where they belonged. Long footnotes could be carried over to the next page. This would improve the readability of research papers and keep the footnotes from being lost.

Richard McHenry
Houston, Texas

Microsoft Word *for the Macintosh allows you to place footnotes either at the end of a document or at the bottoms of the appropriate pages. See "The Word from Microsoft," July/August.–Ed.*

No More Flipping

I think that you are doing an excellent job with *Macworld.* In fact, I have found so much useful information in it that I would like to suggest that you publish a comprehensive index each year. I have worn my first three issues precariously thin from constantly flipping through them to find information that I know I read there somewhere.

Fred Sauter
Rochester, New York

We will publish the first annual Macworld *index in the January 1985 issue.–Ed.*

An Alternative to Get Info

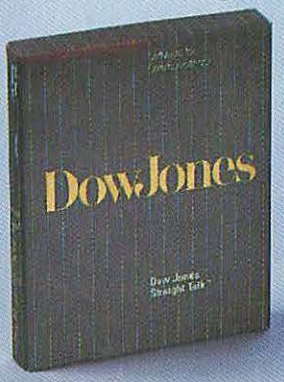
In "Clean Up Your Electronic Desktop" [May/June], Daniel Farber says that you should "keep your file names short and concise. Unless you have only a few files on your desk-

Get that Big Promotion.

In half an hour, your boss is due to finalize a merger with a company you have doubts about. His career rides on this deal. How can you change his mind before it's too late?

Now there's smart software™ for the Macintosh™ computer.

With Straight Talk, the smart software from Dow Jones, you can get the lowdown on a company without ever leaving your office. You might even discover a revealing fact that saves your boss's job and earns you a new one.



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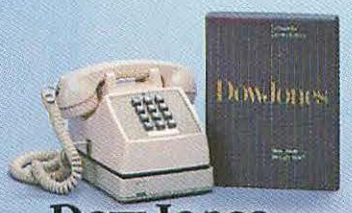
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top, you'll have to move some of your file icons around to make the names legible."

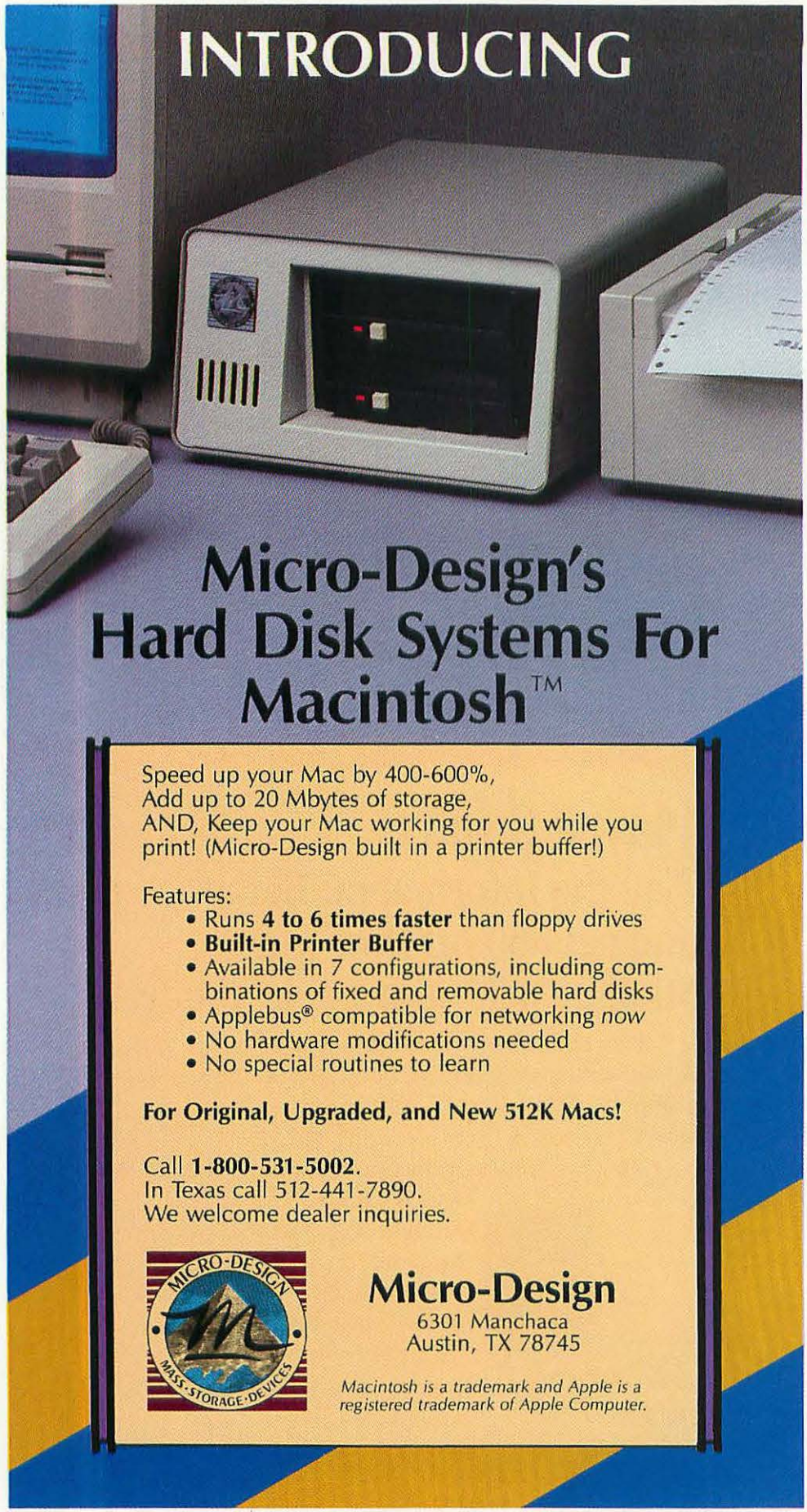
This technique doesn't work for me. I prefer to give rather long names to my files so that I can tell at a glance what information they contain without using the Get Info command. First, I arrange my icons close to each other so that they all fit on one screen. This arrangement causes file names to overlap, but if I need to see a file name I simply click once on the icon. The Finder then highlights the icon and the name, even if they are covered up—and I don't have to move the icon at all. This way, I can look at several file names in the time the system takes to execute one Get Info command.

David Simpson
Mountain View, California

An Excellent Companion

I was one of the first people in Topeka to purchase a Macintosh, and I am highly satisfied with my decision. Unfortunately, while I had enough savvy to make an early buying decision about the Mac, I hesitated on getting a copy of *Macworld*.

I figured it would take a while to truly master my machine, and I incorrectly assumed that reading your publication would take precious learning time away from my first months with the Mac. I



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have since purchased the first few issues at my local Apple dealer and have placed a subscription.

I had judged your magazine on the basis of other computer "rags," which supply much interesting trivia but little specific hands-on information. *Macworld,* on the other hand, is well conceived. I find it to be an excellent companion to the Mac documentation; in fact, I keep my issues of *Macworld* with my manuals for easy reference. I look forward to exploring the intricacies of the Mac together with your fine writers, and I am anxiously awaiting further inside looks at new developments and in-depth explorations of the software I already own.

Mitch Cooper
Topeka, Kansas

Letters should be mailed to Letters, Macworld, *555 De Haro St., San Francisco, CA 94107, or sent electronically to CompuServe, 74055,412 or Source STE908.* □

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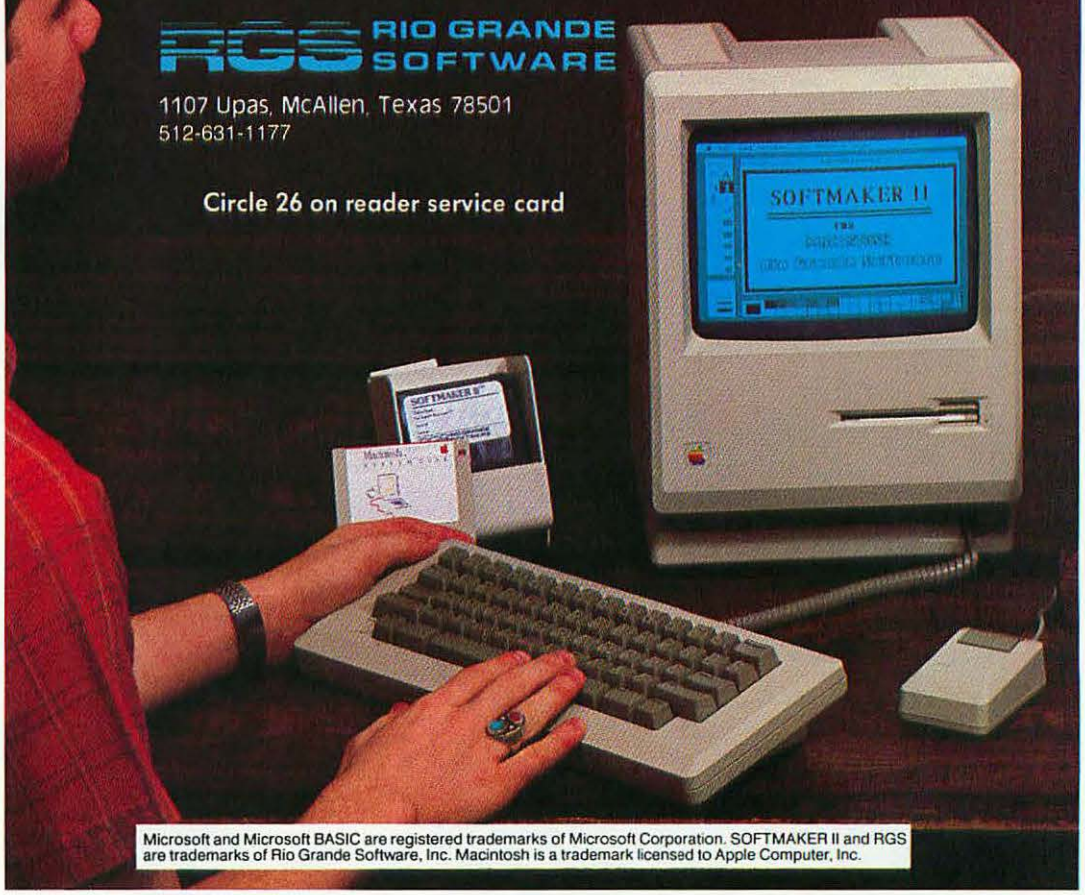
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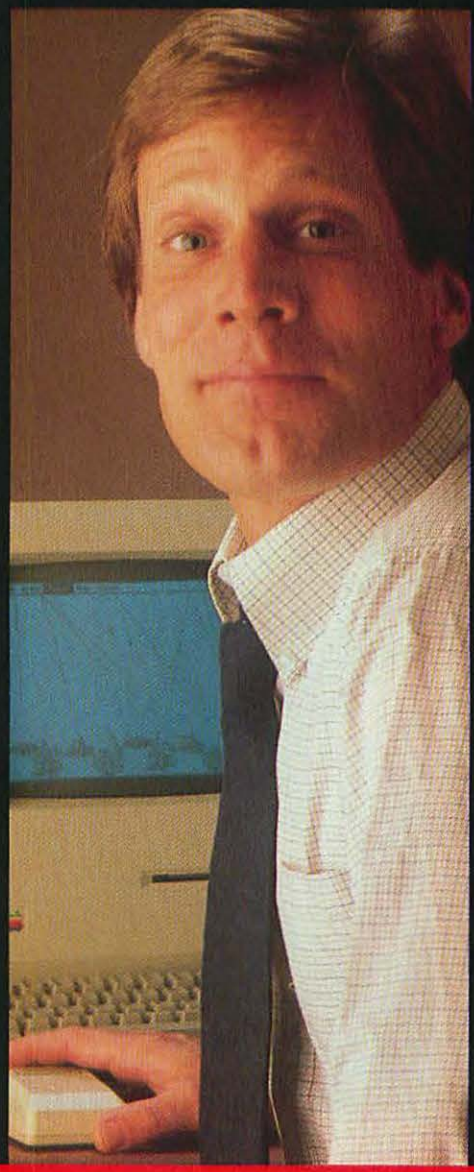
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HOW A MACINTOSH PREVENTED THE OBLITERATION OF THE HUMAN RACE.



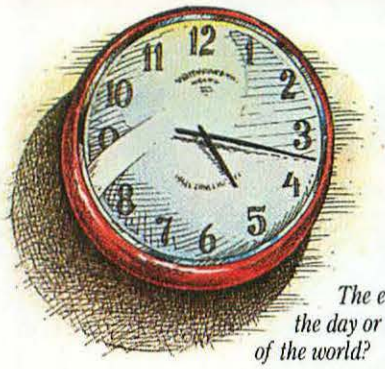
An Apple Macintosh™ can do quite a few amazing things. The latest of which is preventing global annihilation.

Consider Mr. Orson Aardvark. An ordinary business executive ready to pack up and head home after yet another difficult day. The time was 5:17 P.M. EST. Aardvark had no idea just how difficult his day was to become.

His desk had just become

GROUND ZERO

Saving the world is all in a day's work for one Orson Aardvark.



The end of the day or the end of the world?

Aardvark watched as his country's entire defense system appeared on his Macintosh display screen. Nuclear attack warning lights were flashing like cameras at a Japanese photographers' convention. In Aardvark's hands were the defense weapons that could save his country, and the world, from becoming one extra large cheese pizza.



Will it be for here or to go?

Aardvark grabbed the mouse. He paused. He thought. If the country were to be destroyed, there would be no 1040 forms to fill out. No lawn to mow. No weekend trips to see his mother-in-law.



Accelerated Depreciation.

But while some people believed the world could survive a nuclear holocaust, Aardvark knew better. He had seen "Planet of the Apes."



The next President?

It was his duty to do everything in his power to save the country. Aardvark readied the laser defenses. But which city should he protect first? San Francisco? New York? Washington, D.C.? No, not Washington, D.C. The Redskins had cost him a fortune in last year's Super Bowl.

Will Washington be beaten by the long bomb?



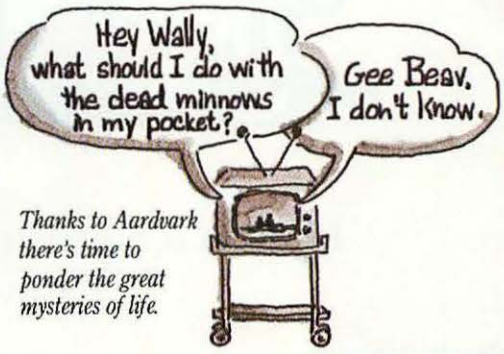
Missiles descended faster. Smart bombs began to fall. Enemy planes commenced their attack.

Aardvark began to fire. And fire. First Chicago was saved, then Boston. His quick hand and quicker eye were clearing the skies above his homeland. Every muscle, every nerve, focused on the screen before him.

He continued to fire.

Aardvark watched as the last enemy missile fell towards Bangor, Maine. Again he paused. Bangor was where his mother-in-law lived. With a sigh and a flick of his finger, the final missile was destroyed.

He sat tired. A good kind of tired. A drop of sweat rolled down his forehead and off his nose. He had once again made the world safe for democracy and "Leave it to Beaver" reruns.



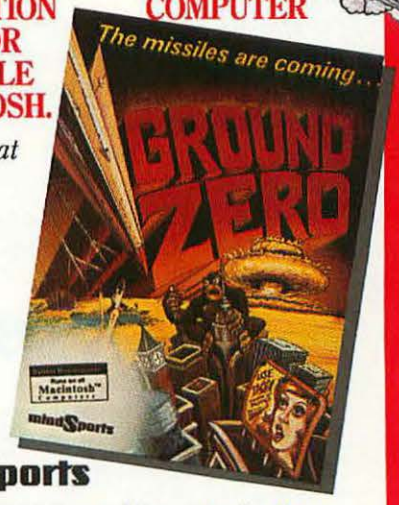
Thanks to Aardvark there's time to ponder the great mysteries of life.

Aardvark rose from his chair. And as he stood staring at the Macintosh screen, a shiver went up his spine.

He felt another nuclear attack coming on.

GROUND ZERO™ FROM MINDSPORTS.™ THE FIRST FAST-ACTION COMPUTER GAME FOR THE APPLE MACINTOSH.

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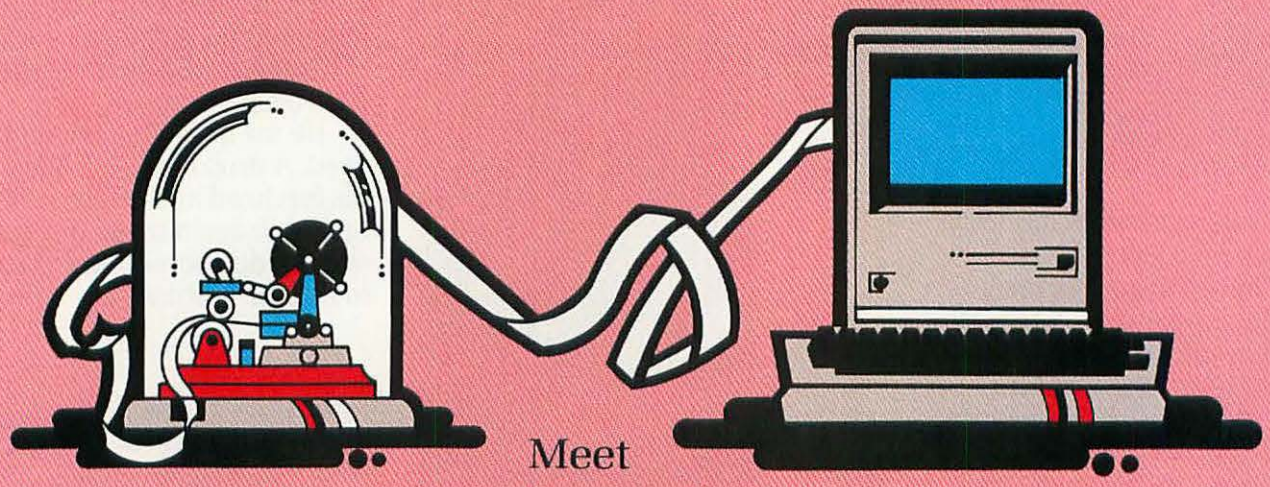


mindSports

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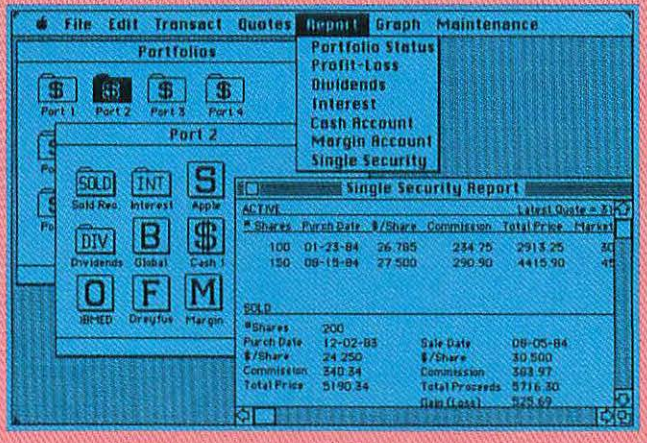
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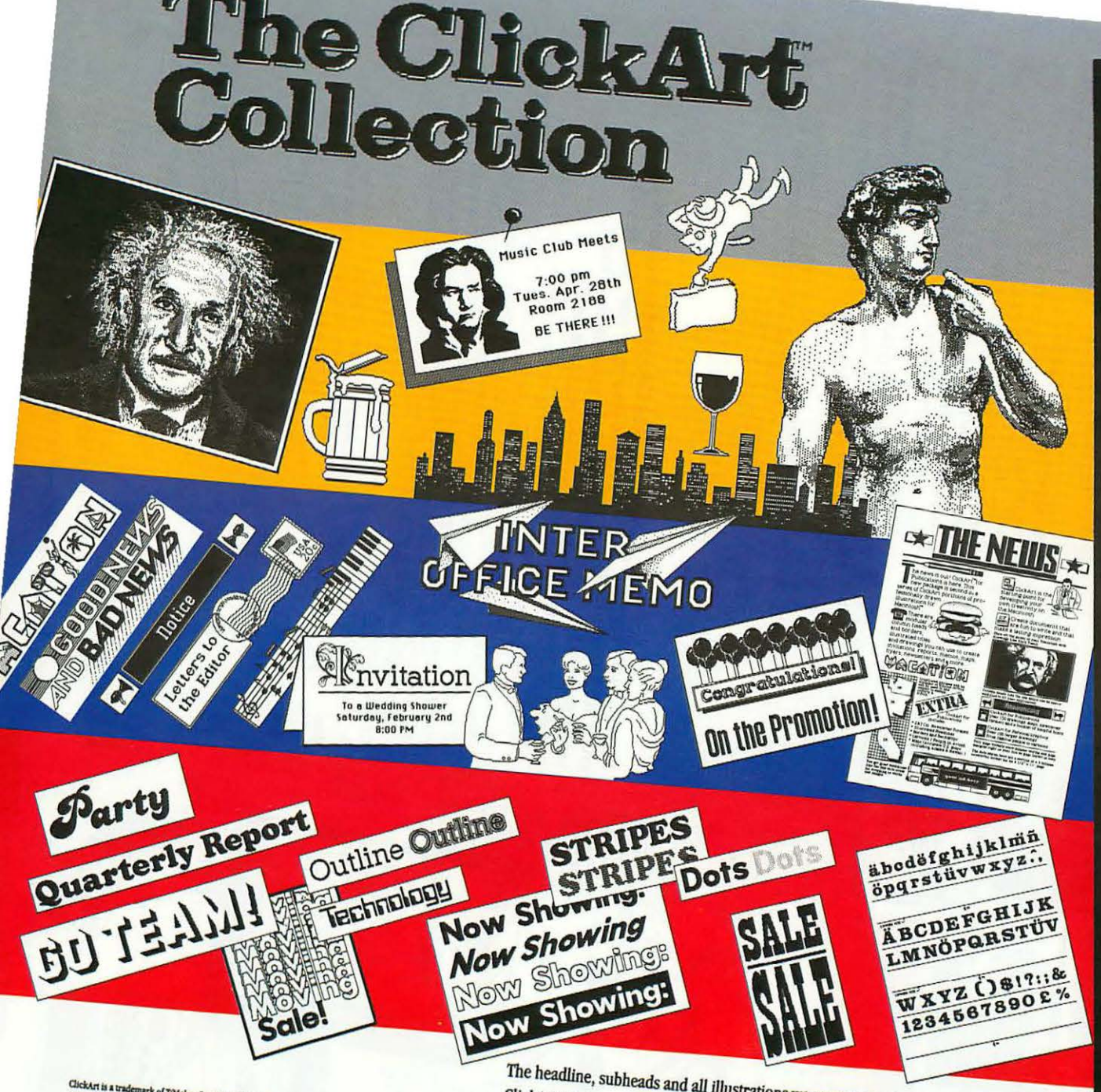
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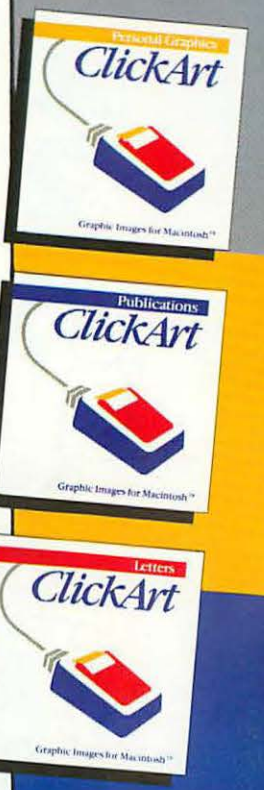
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Want Subliminal Messages in your show? The Slide Show Magician lets you put them in, as well as superimpose blocks of text over key pictures.

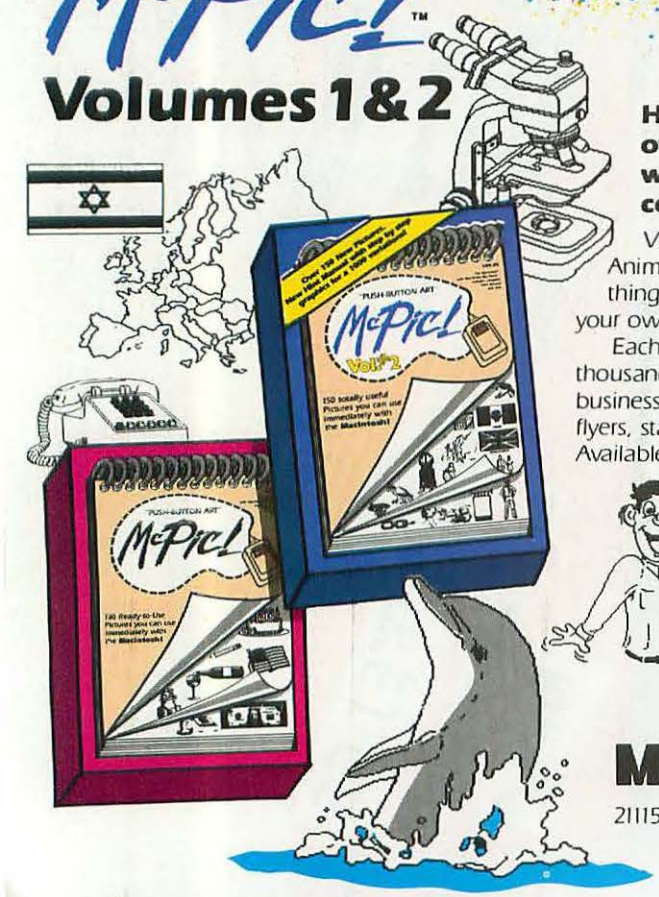
Naturally, you can edit your show — shift a frame, eliminate a frame, add or delete special effects, select the time before a frame change. And you can use the supplied screen-borders (like a stage curtain which opens) or quickly prepare your own.

Now you can create the most interesting slide shows **this side of Hollywood!** And thanks to the Mac's portability you can take it with you right to a customer's desk, the boss' office, to school, to meetings. Or, set it on a counter or in your store window and let the show run and run and run.

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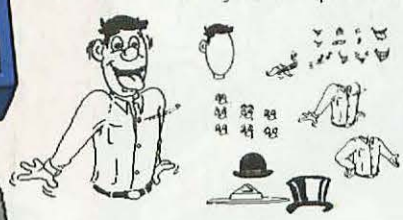


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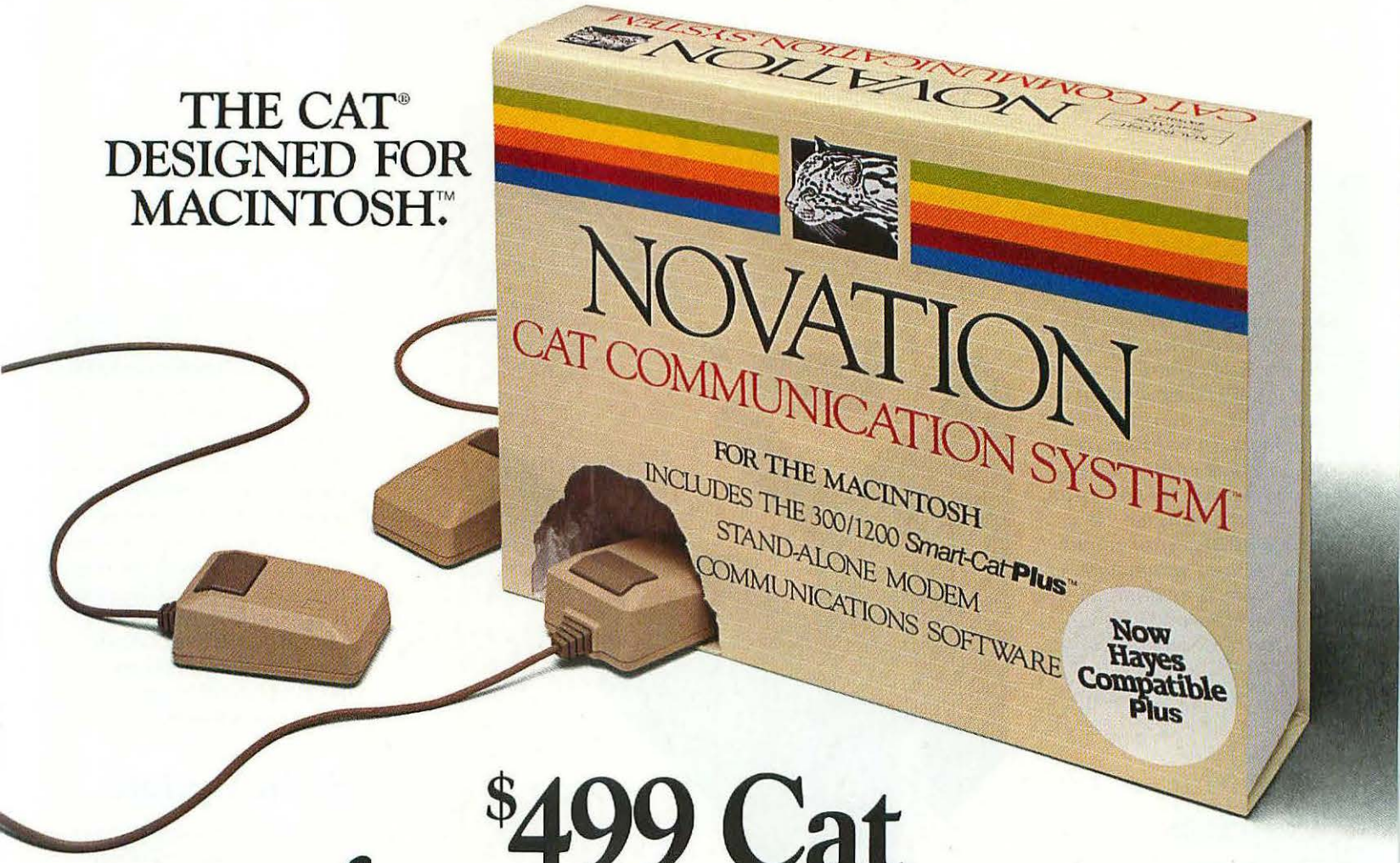


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Macworld View

News and notes for the Macintosh community



Edited by Janet McCandless

Macworld View *reports on new products and developments in Macintosh technology. We cover items of interest to Mac users and comment on industry trends. We welcome contributions from readers and pay up to $50 for the items we use. Please include your name, address, and phone number with your contributions; send them to* Macworld View, *555 De Haro St., San Francisco, CA 94107.*

The Mac Coaches Batters

Can playing video games improve a baseball player's batting average? Yes, says Peter Favaro, a personal computer consultant with a doctorate in psychology.

When video games first appeared, many sports trainers wondered if they could be used to improve athletes' eye-hand coordination. Favaro, however, believes that such software is best applied to sharpening athletes' decision-making processes, rather than to developing their eye-hand coordination per se.

For example, take a baseball player who is in a slump. Normally, coaches work on improving such a player's batting techniques. But Favaro believes that slumps result from slowed-down processing of the visual information the athlete receives while playing.

The batter must, for instance, recognize at exactly what point a ball breaks. When the ball is first thrown by the pitcher, it appears to travel in a straight line. If it is a fast ball, it continues traveling along the same path. But if it is a curve ball, it breaks at some point. Exactly when does the visual information change?

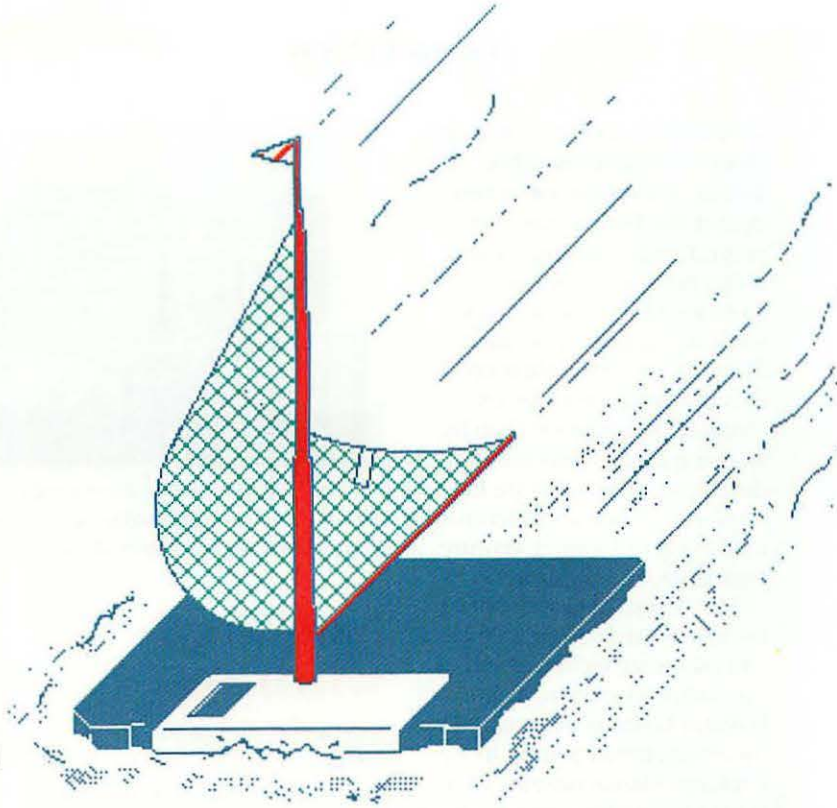
To sharpen this one aspect of athletic decision making, Favaro has designed a video game for the Macintosh. The player is shown an image of a coin flipping at high speed. He or she must click the mouse each time the image changes.

Favaro believes that practicing this discrimination task helps train baseball players to judge the pitcher's throw and decide when to hit the ball.

Favaro selected the Mac for developing sports software because of its fast 68000 processor and its black-and-white high-resolution monitor, which athletes find "less distracting" than a color monitor. He plans to publish a book, accompanied by software, on personal computer applications in sports, physical fitness, and stress management.

512K Update

The official announcement of the 512K Macintosh on September 10 creates new purchasing decisions for both potential owners and owners who bought their machines before the announcement date. The suggested retail price for the 512K Mac is $3195, and the price of the 128K version has been reduced $300 (from $2495 to $2195). If you look through your local newspaper, you may see the 128K Macintosh advertised for less than $2195. And some retailers are even selling it for less than $2000.



Mac owners who want to upgrade their 128K machines to 512K must purchase the Macintosh 512K Memory Expansion Kit from a dealer for $995. Your dealer performs the upgrade by installing a new digital board; the procedure takes less than half an hour. If you bought your Mac before September 10 and can't decide if you want to upgrade, you may be interested in Apple's incentive plan. As of this writing, Apple plans to have your dealer give you a special coupon when you upgrade your machine. If you send Apple the coupon, your system disk, and proof of the date you purchased your 128K Mac, you will receive free copies of *MacDraw* and *MacProject*. Coupons will be packaged with the Memory Expansion Kit until March 31, 1985 and can be redeemed until June 1.



The 512K Mac performs better than the 128K Mac in several respects. You can copy disks and documents faster, store larger documents, and use enhanced application programs designed to take advantage of the extra 384K of memory. But the real power of the 512K Mac shows up when a portion of memory is configured as a RAM disk. A RAM disk (sometimes called an electronic disk) uses the computer's memory to hold programs and data. If you load an application and all the information it needs to run into a RAM disk, for example, the delays that occur as the Mac transfers information into memory from disk or vice versa are virtually eliminated. Assimilation Process of Cupertino, California, plans to release RAM disk software for the 512K Mac. See your Apple dealer for availability information.

Microsoft Overseas

If you're a businessperson revising a *Microsoft Multiplan* spreadsheet for a report on your board of directors' meeting in Copenhagen, you may not realize that your colleague in a Paris branch office could be preparing a similar report using a French version of *Multiplan*.

Yes, foreign-language software for the Mac is available, and will become increasingly common during the next few months. Since the European software market is growing rapidly, companies such as Microsoft (which has subsidiaries in England, France, and Germany) are planning to translate Macintosh software and distribute it overseas. In fact, Microsoft plans to release French and Italian versions of *Multiplan* before the end of 1984. A German version is scheduled for release in late 1984 or the first quarter of 1985, as is a French version of *Microsoft Chart*. Future plans for European Macintosh owners include foreign-language releases of *Microsoft Word, Microsoft File,* and MBASIC 2.0.

Programmers Supporting Each Other

Independent software developers are finding that some of their best friends are direct competitors. At least, that's what's happening at the Software Entrepreneur's Forum and the Programmer's Shop.

Programmers for the Macintosh meet regularly at the Software Entrepreneur's Forum (in Palo Alto, California) to swap information and to share expertise. Every two weeks, speakers give talks on particular topics and members engage in informal discussions. And once a week, smaller groups of four to seven programmers gather to discuss the Macintosh documentation or to work on a se-

lected topic, such as how to implement desk accessories. William Parkhurst, vice-president of the Forum, says that programmers willingly share utility programs and subroutines. He feels that many small developers recognize that they can bring their products to market faster by exchanging information than by working alone. In addition to developers, the Software Entrepreneur's Forum welcomes marketing personnel, venture capitalists, and publishers.

The Forum also sponsors a bulletin board where members can exchange technical and product information. A similar bulletin board is maintained by the Programmer's Shop in Hanover, Massachusetts, a nationwide retailer specializing in products for programmers. Certified and noncertified developers use the board to exchange information about products they have developed, heard about, or tried. These products include compilers, languages, utilities, and development tools (such as assemblers, debuggers, and libraries). The Programmer's Shop also attempts to verify product and release date information for its clients, and advises them on market trends.

For more information on the Software Entrepreneur's Forum, write to Barbara Cass, Executive Director, Software Entrepreneur's Forum, P.O. Box 61031, Palo Alto, CA 94306, 415/854-7219. For information on the Programmer's Shop, write to Programmer's Shop, 128 Rockland St., Hanover, MA 02339, 800/421-8006 or 617/826-7531.



The simple, fluid designs decorating the boxes for the Macintosh and its accessories resemble Matisse's work. The motifs of most of the components are cleverly replicated from the drawing of the Mac.

An Award-winning Package

Since its introduction in January, the Macintosh's packaging designs have received wide recognition. The American Institute of Graphic Arts cited the Mac team for packaging designs in its communications graphics competition. The Industrial Designers Society of America presented Apple with a certificate of excellence in which jurors remarked that "the Macintosh packaging presents a delightful departure from the standard computer packaging with its technical appearance and state-of-the-art imagery.... But not only are the graphics engaging, they are also daringly different. All in all, a brilliant, human design breakthrough." The packaging designs were among 100 accepted by the Society of Typographers of America for its annual show. The Mac team achieved recognition in separate annual competitions sponsored by *Art Direction* and *Print* magazines.

Inspired by a poster by John Casado, Tom Hughes invented a design for the Mac logo using primary colors that have line quality resembling the work of the French artist Matisse. Hughes retained Casado to create the actual illustration, relying on his experience in minimalist designs, in which each line is significant. According to Hughes, Steve Jobs was involved in fine-tuning the logo. Clement Mok worked with Hughes on the designs for the boxes that contained the numeric keypad, the disk drive, and the carrying case. Mok was also the art director for the *MacPaint* manual. Ellen Romano developed the overall design for the manuals and managed their production.

Apple in Community Affairs

Beginning in 1985, Apple will offer Macintoshes as part of its Community Affairs Grants program to nonprofit organizations. Mark Vermilion, Apple's manager of community affairs, says that the grants are awarded primarily to organizations that use personal networks "for direct human services and humanistic kinds of activities." For example, Chorizo, a San Francisco-based organization, received a grant to develop a shared data base for five neighborhood agencies to retrieve information on legal aid, health services, education, and housing. A group of artists from Davis, California, that travels and puts on shows for the public obtained an Apple II for choreography and music synthesis.

Apple's Grants office receives 1000 to 2500 inquiries a month. Although Vermilion understands that nonprofit organizations are administered by overworked employees, he cautions administrators to take the time to plan a computer application thoroughly and to discuss how the technology will be introduced within their organization. He recommends that organizations research other nonprofits that already use computers in their work. One agency that nonprofit associations can contact for information is the Public Interest Computer Association in Washington, D. C. Write to PICA, 122 Maryland Ave. NE, Washington, DC 20002, 202/544-4171.

As a way of addressing the needs of a large number of nonprofit groups in metropolitan areas, Apple has initiated a computer lab project. Vermilion says that Apple intends to establish eight to ten computer labs this year. The first lab has been set up at the Information Technology Resource Center, affiliated with the Museum of Science and Industry in Chicago. The lab is equipped with Apple IIe's and Macintoshes, and its purpose is to inform nonprofit organizations about the uses of computers in their work. The lab staff assists administrators in identifying their organization's computer needs and in selecting appropriate applications.

Groups are given access time on computers. The computer lab program is a coordinated effort by Apple, other vendors, local funding sources, and service organizations that provide technical assistance to nonprofit groups.

For futher information on the Community Affairs Grant program, write to Apple Computer, Apple Community Affairs, 20525 Mariani Ave., M/S 23L, Cupertino, CA 95014.

The Look-alike Story

Several new programs reveal that the Macintosh user interface and bit-mapped graphics are influencing the design of software for other personal computers. One of the most influential programs is Bill Atkinson's *MacPaint*. Jeffrey Young, a Contributing Editor of *Macworld,* has followed the *MacPaint* phenomenon since the Mac was introduced in January 1984. He recently examined three graphics programs that offer interesting comparisons with *MacPaint*.

Young reports that *ColorPaint,* released by IBM for the PCjr, is *MacPaint*'s closest look-alike. You choose items from pull-down menus and draw with a mouse. *ColorPaint*'s menu is similar to *MacPaint*'s, with the addition of a merge feature for combining two drawings. Fewer shaped tools are provided in *ColorPaint*'s tool shelf, but a microscope tool enables you to edit your drawings pixel by pixel. A tool's most recent action can be reversed with a second button on the mouse.

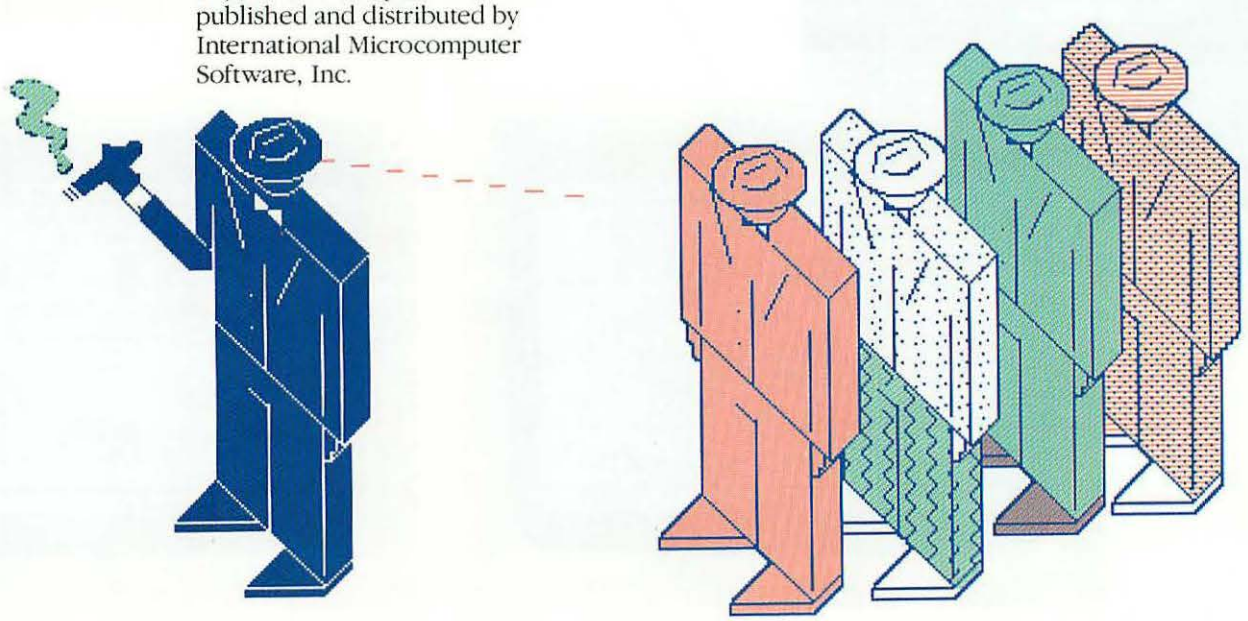
ColorPaint does not allow you to integrate text and pictures, and it provides fewer fonts and font sizes than does *MacPaint*. Eight separate 16-color palettes are provided, giving you 128 colors in all. However, you can use only four colors on the screen at once, and the intensity of the colors changes each time you select a new color palette. *ColorPaint* allows you to print in color.

Young notes that *PC Paintbrush* (received too late for review) is also similar to *MacPaint*. It runs on the IBM PC, PCjr, and PC compatibles, and is published and distributed by International Microcomputer Software, Inc.

Two other programs related to *MacPaint*–*MousePaint* and *DazzleDraw*–work with the Apple IIe and Apple IIc. *MousePaint* (also called *ApplePaint*) was created by Bill Budge, author of the *Pinball Construction Set* game, and is marketed by Apple. *MousePaint* does not allow you to use patterns, only solid colors. The program offers 128 colors, but you can use only one at a time on the screen. However, you can print in more than one color with the Apple Scribe printer.

The second *MacPaint* look-alike for the Apple IIe and Apple IIc is *DazzleDraw,* marketed by Broderbund Software. *DazzleDraw* provides 128 different colors that can be combined and saved on disk. An exchange feature allows you to fill portions of your drawing more flexibly than with the *MacPaint* paint bucket; you can exchange patterns and colors in specific areas. *DazzleDraw*'s tools are not visible on a tool shelf; they must be chosen from a pull-down menu. You can enter text with *DazzleDraw,* but its text capabilities, like *ColorPaint*'s, are more limited than those of *MacPaint*. *DazzleDraw* allows you to print in color.

According to Young, the computers running these *MacPaint* look-alikes have lower-resolution graphics than the Macintosh. Consequently, you cannot achieve such finely detailed drawings. Also, none of the programs offer the flexiblity of the lasso in selecting areas to be cut or copied. They rely instead on equivalents of the clumsier selection rectangle. And although you can print drawings created with any of these three programs in color, to do so you must invest in a thermal or ink jet color printer. □



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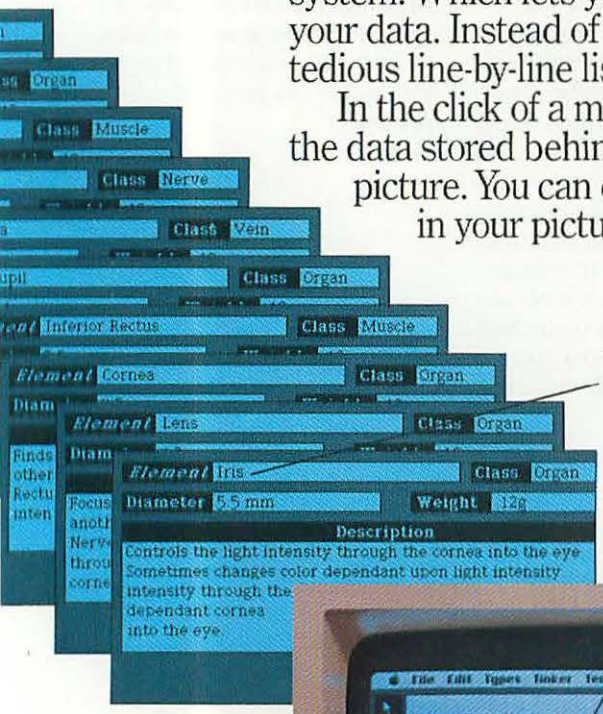
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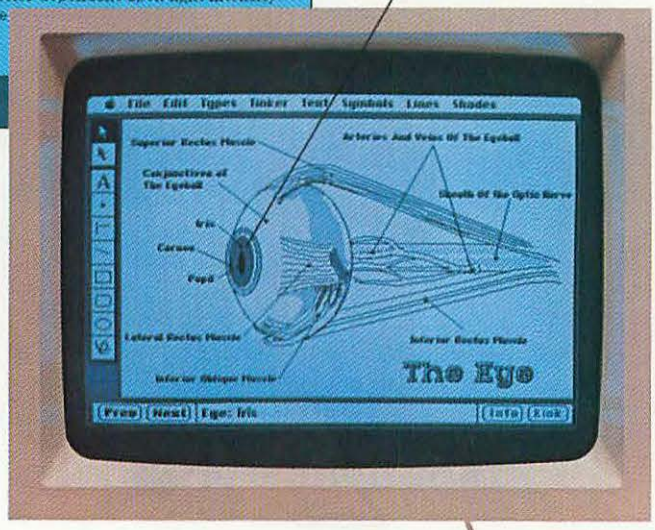
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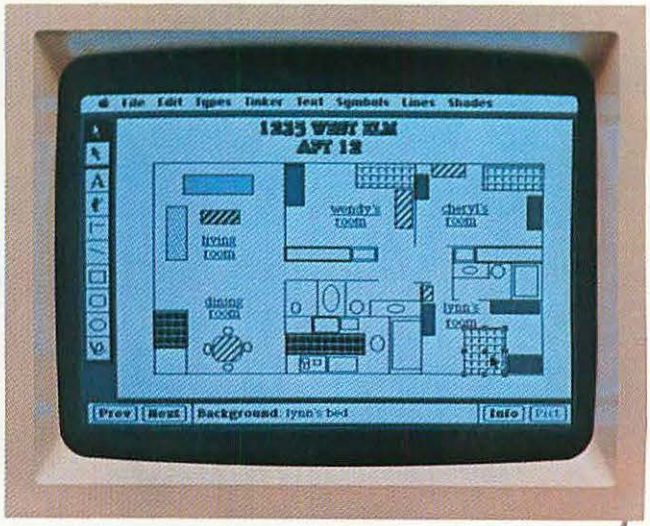
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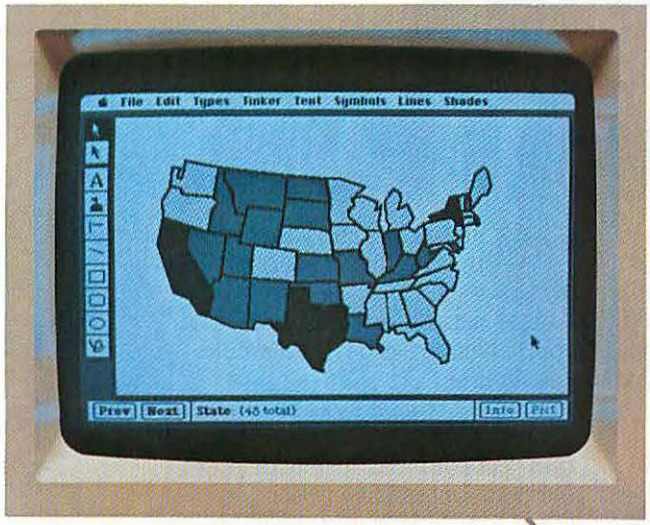
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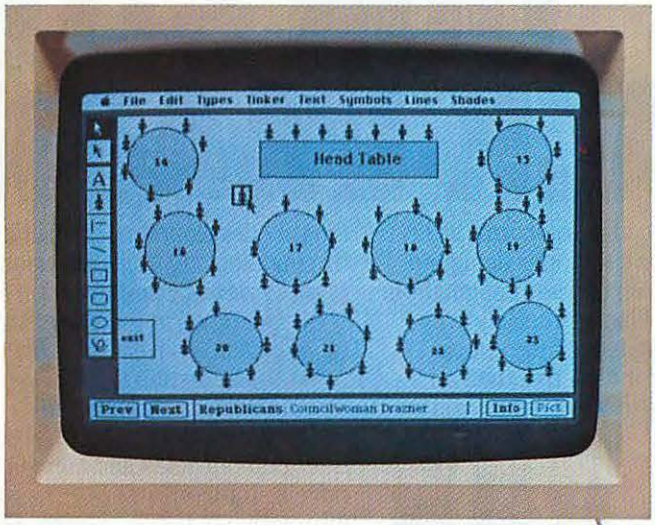
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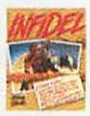
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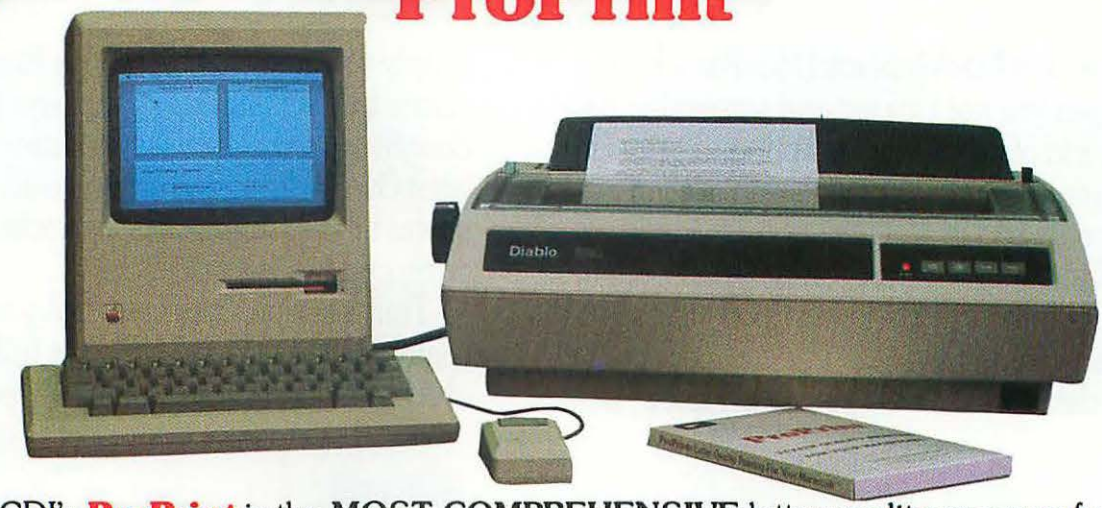
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Have You Hugged Your Mac Today?

Gordon McComb

The Macintosh is a fairly self-sufficient machine. It does what you ask it to do without demanding too much attention, but carrying out your commands does cause wear and tear. Following some simple, inexpensive cleaning routines can help you save money on service calls.

Just about any dentist will tell you that the best way to keep a happy smile is to take care of your teeth. Brush regularly, dentists say, and avoid between-meal sugary snacks, and you'll greatly reduce the chances of getting nasty holes in your teeth. Unlike old-time dentists, modern dentists urge preventive maintenance. They leave pulling teeth till last. The more you take care of your teeth, the less drilling and filling you'll have to suffer.

What on earth do teeth and the Macintosh have in common? Just like your teeth, your Macintosh needs regular care if you expect it to have a long and hearty life. With the Mac, you're not up against cavities, but against dirt, grime, oil, and a host of other potentially disastrous villains. Keeping the Mac in top working condition can help you avoid costly service calls.

For a long-lasting Mac, it's a good idea to clean the slender plastic exterior, to vacuum or blow out accumulated dust from its ventilation slots, to keep the disk drive grime-free, and to maintain the mouse in top working condition. While there's nothing technical about caring for the Macintosh, and nothing outrageously expensive, there are right and wrong ways to do it.



A Home for Your Mac

The first step toward proper Mac care is placing the machine in the proper environment. A sturdy desk or table in a corner of a clean office, den, or classroom is ideal. The Macintosh should be kept out of direct sunlight. Not only can the sun's light cause annoying glare on the video screen, its heat can warp the Mac's plastic case. Worse still, sunlight can cause the internal circuits to overheat. Let one of the Mac's components get too hot and it'll burn out. Blow just one chip and you're looking at a $50 repair bill, minimum.

The Macintosh was designed to use convection cooling. With this cooling technique, air is drawn through the Mac's side and bottom vents and out the top when the inside of the machine heats up. If you block any of these vents, you seriously restrict the airflow so that the Mac heats up.

Figure 1
Clean the Macintosh's exterior with a soft sable paintbrush, which you can buy at any art store.



For safety's sake, always keep the immediate area around the Macintosh free of objects, including paper, disk caddies, modems, and printers. In particular, keep the external drive away from the vents on the computer's left side. The left side gets the hottest because it's the side with the heat-generating analog board (which contains the Mac's power supply and all the electronics to operate the video display tube). The vents should get at least an inch of free space for breathing room.

If you're a lousy housekeeper, it'll quickly show up in the way your Macintosh behaves.

One of the latest furniture trends is all-in-one computer workstations with all kinds of nooks and crannies for a computer and its accessories. Specially built furniture is a nice idea, but it's wise to stay away from the desks where the computer is tucked inside an enclosure (they're easy to spot: they look like futuristic rolltop desks or fancy kitchen cabinets). Like errant papers or misplaced disk drives, enclosed computer workstations can restrict airflow through the Macintosh.

Power to the Mac

While thinking of a good place to rest your Mac, consider the location of the nearest power outlet. If at all possible, place the Mac right by an outlet and avoid the use of extension cords. If no convenient power outlet can be found, you'll have to make do with an extension cord. The Mac's power cable is only a little over 7 feet long, so in reality an outlet must be under your nose to do much good. There is actually nothing wrong with using an extension cord with the Mac, but you must follow some rules.

Don't settle for just any extension cord. Good ones for the Mac should be big and fat and rated for at least 20 amps. Most importantly, the cord must have a grounding plug. This plug is essential for safety.

Alas, the cheap extension cords commonly used for lamps just won't do for the Mac. They're too light and they lack a grounding wire. While you're at the hardware store buying the right kind of extension cord, get one that's just long enough for the job. Don't trail a 20-foot cord around the floor when a 6-foot cord will do.

Whether you use an extension cord or not, keep the wires out of the way. You run the risk of losing precious data if someone trips over the cord and the plug comes tearing out of the wall. Besides, tripping over the power cord will likely yank the Mac right off the table, and a cracked Mac is a sorry sight.

When at all possible, avoid plugging the Mac into the same electrical circuit shared by a heavy, power-hungry appliance such as a refrigerator, air conditioner, or photocopier. Heavy appliances like these draw lots of power when they are first turned on. And when they're turned off, they pump a bolt of electricity through the power circuits that can find its way into the Macintosh.

The power supply built into the Macintosh has electronics to squelch most of these momentary power drains and surges, but it can't compensate for them all. Brownouts and surges, even the ones that last less than a hundredth of a second, can corrupt data in the Macintosh's random access memory (RAM). Some of the more powerful surges can even cause permanent damage, requiring extensive repair.

For extra protection against power fluctuations, consider buying a power line conditioner at a computer retail store. These cost from $40 to $150 and provide an extra measure of protection for the Mac's power circuits.

Cleaning Up Your Act

The second step toward proper Mac care is a clean and healthy home or office. If you're a lousy housekeeper, it'll quickly show up in the way your Macintosh behaves. Dust and soot in the air can settle between the Mac's keys, which can make typing a chore. Dust can also find its way inside the Macintosh, where it forms a blanketlike film on the internal electrical components and connections and makes the Mac heat up. Dust is to be avoided. Consider it Mac Enemy Number One.

Reduce airborne pollutants by regularly dusting and vacuuming the room you keep your Mac in. Keep the area around the Macintosh as clean as possible. If your Mac is near a window or an air vent, controlling dust will be difficult at best. Even so, clean as much as you can. If your Mac is stationed in an air-conditioned room, be sure that the vent filters are cleaned regularly.

If you live in a dry, dusty climate or use the Macintosh in an area where dust is hard to control, consider buying an electrostatic air filter at a department store (for about $20). These power-operated cleaners work by actively attracting dust. They give off small charges of electricity, so keep them away from the computer and disks. The filters in electrostatic cleaners get grimy fast, so replace them promptly when they are soiled.

Surprisingly, the Mac is also vulnerable in the wet winter, when airborne dust is at a minimum. The reason is simple. Winter is heater season. If you use a kerosene- or wood-burning heater near your Mac, take note. Most wood heaters, even properly vented ones, give off soot and ash that can be hard to control. Kerosene heaters emit a fine spray of conductive oil that acts as a dust attractor when the oil settles on and in

(continues on page 49)

Suppliers of Cleaning Accessories

ACL, Inc.
1960 E. Devon Ave.
Elk Grove Village, IL 60007
312/981-9212
Staticide wipes for CRT screens.

Automation Facilities Corp.
Financial Plaza
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805/687-7040
Wet/dry disk cleaner, computer maintenance kit (with antistatic cloths and flexible sponge-tipped wands).

Bib
Computa-Care Division
1751 Jay Ell Dr.
Richardson, TX 75081
800/527-4549
Cleaning accessories, including antistatic CRT cleaner and compressed air canisters.

CMPI
(Computer Maintenance Products Intl., Inc.)
7200 Jersey Ave. N
Minneapolis, MN 55428
612/566-1848
Computer care products, including antistatic cloths and sprays, antistatic spray for floors and carpets, lint-free cloths, disk head cleaning disks.

C. M. & T., Inc.
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305/624-1110
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Columbia, MO 65205
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Detroit, MI 48207
313/259-1104
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National Systems Corp.
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Cleveland, OH 44106
216/721-3309
Antistatic carpet and furniture spray, antistatic mats.

Nortronics Company, Inc.
8101 10th Ave. N
Minneapolis, MN 55427
612/545-0401
Wet/dry process micro-floppy disk drive cleaner.

PerfectData Corp.
9174 Deering Ave.
Chatsworth, CA 91311
213/998-2400
Cleaning supplies, including antistatic spray for carpets and floors, lint-free cloths, and CRT cleaner.

RSI Computer Care
4001 N. Ravenswood Ave.
Chicago, IL 60613
312/935-3080
Computer care kits, CRT wipes, antistatic sprays, etc.

Tech Spray, Inc.
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Amarillo, TX 79105
800/858-4043
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Texwipe Company
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201/327-9100
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Toward a Cleaner Imagewriter

The Apple Imagewriter requires little attention and can go on printing for weeks without problems. Even so, dust and paper bits can collect inside the works and must be removed periodically. In addition, it's a good idea to apply a dab of "3-in-1" oil to a felt lubrication ring inside the printer.

Cleaning the Imagewriter is a once-a-week proposition. Lubricating it is an every 6- to 12-month job. Make it a routine to take the paper and carrier covers off the Imagewriter and inspect the inside for excess dust and paper. If you use pin-feed paper, confetti from the holes will probably be scattered about.

Like the Macintosh, the outside of the Imagewriter can be cleaned with a brush, a dry, lintless cloth, or a cloth rag wetted down with ordinary household cleaner. The inside of the Imagewriter is best cleaned with a can of compressed air.

Before cleaning the inside of the Imagewriter, turn it off. If you're cleaning it after printing, stay away from the type head because it heats up.

If you use compressed air, direct the blast so that dust and paper are blown outward (see the figure labeled "Cleaning the Imagewriter"). To get rid of foreign particles caught way back in the mechanism, use a vacuum cleaner with a brush attachment. This keeps the particles from lodging themselves even deeper inside the Imagewriter.

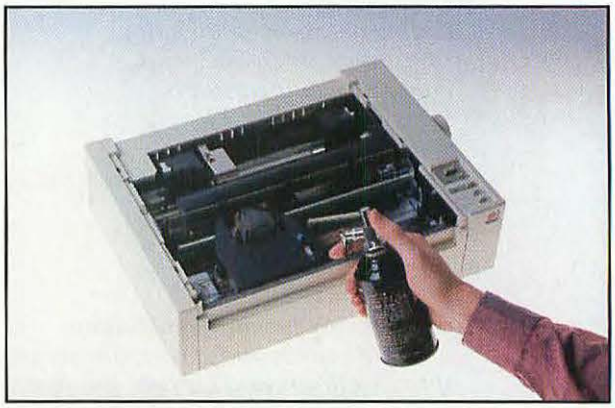
When you clean, give special attention to the area immediately around the type head. Inspect the area between the type head and rubber printing platen for loose paper bits. Blow them out if possible, or use a brush to dislodge them.

A built-in paper-out detector is located behind the printing platen (the detector has a metal hood over it). When the detector senses that there's no more paper going through the mechanism, it signals the Imagewriter, which suspends printing. This helps prevent damage to the printing platen and to the type head.

The trouble is, the paper-out detector can get jammed, making it behave as if you're out of paper. To avoid this problem, clean the detector regularly—another job for the can of compressed air.

Lubrication makes the type head slide along the carrier bar more smoothly. To lubricate the ring:

- Take the carrier cover off.
- Remove the ribbon.
- Clean the chrome carrier bar with a lintless cloth (the carrier bar is right in front; the type head rides on it).
- Locate the lubrication ring. It can be found under the neck of the type head (it attaches around the carrier bar).
- Apply a drop or two of light machine oil to the ring. Just about any kind of machine oil can be used, as long as it doesn't contain antirust chemicals.



Cleaning the Imagewriter

Use compressed air to clean the inside of the Imagewriter. Blow dust and paper bits outward.

- Slide the type head back and forth along the length of the carrier bar a few times to spread the oil. You might want to place a small sticker inside the Imagewriter or on the underside of the carrier lid to mark the dates oil is applied to the lubrication ring.

Quite a number of printing problems are caused by a worn-out ribbon. Replace a ribbon when the print becomes gray. It's not a good idea to reuse old ribbons by reinking them or by spraying them with a solvent like WD-40. The reason: pieces of an overused and frayed ribbon can get caught in the needle-sized pins of the type head, bending them into oblivion. Thus speaks the voice of experience.

(continued from page 46)

the Mac. The job of cleaning a Mac used in close proximity to a heater can be a frustrating one. You can make it much less of a chore if you place the heater as far from the Mac as possible.

Spit and Polish

Dust and dirt can never be fully avoided; some always seems to sneak by the best filters and housekeeping measures. Make periodic cleaning an integral part of your quest for a healthy Mac.

Begin by cleaning the Mac's exterior (see Figure 1). A thick, soft sable brush—the kind used by artists—is perfect for this (for best results, get a new brush and don't use it for anything else). Start at the top of the Mac and work down, and don't forget to clean between the keys. Most importantly, remove all the accumulated dust around the Mac's vent slots. Brushing the vents is important because the Mac's cover can't be safely removed to clean the insides. Always leave opening the Mac's case to a qualified technician.

Stubborn spots can be wiped clean with a lintless cloth. Most photography stores sell lintless antistatic wipe cloths made for cleaning camera and darkroom gear. These cloths work perfectly well with the Mac, too. Like the paintbrush, the cloth should become the sole property of the Mac, and shouldn't be used for drying the dishes or wiping off your car. You can also buy computer-cleaning kits, which include antistatic wipes, at most computer stores (see also "Suppliers of Cleaning Accessories").

Occasionally, you need to apply a bit of muscle to remove sticky dust and grime from the Mac. You can use any medium-strength household spray cleaner, such as 409 or Fantastik. But be careful how you apply the spray. For best results, lightly dampen a clean dish towel (avoid paper towels) and spray the cleaner on it. Don't apply the spray directly to the Mac, since the liquid can ooze into places where you don't want it, like inside the vent slots or between keys.

As a general rule, avoid heavy-duty and caustic cleaners. They can do more harm than good. Rather, use only cleaners specifically recommended for application to plastic. Whatever you do, stay away from petroleum-based cleaners, like paint remover or lacquer thinner, which can soften, weaken, and eventually ruin the Mac's plastic case.

Dust particles are smart beasts. They know that the deeper they travel into the Mac, the harder it is for you to get them out. You may find that the brush and cloth combination can't get into every crevice of the Mac. What to do? While you're at the photo store buying the lintless cloth, pick up a can of compressed air. Now, when you need to get out stubborn, hard-to-reach dust, blow it out.

There are several sizes of compressed air cans to choose from. If you're on a budget, get the pocket-sized cans. These don't have very many air blasts in them, and they're costly in the long run. But they can be used straight out of the box. They cost about $2 a can.

The larger sizes of compressed air cans, which cost in the neighborhood of $5 to $8, require a separate valve/nozzle (an extra $7 to $10 investment). The valve/nozzle can be reused, of course. Your added investment in the bigger cans, which have several hundred shots of air packed in them, is well worth it. They're more powerful and more efficient than the pocket-sized cans.

By the way, be sure to use only a commercially available clean-air system. Never try to make do with things like a bicycle pump, a paint compressor, or a vacuum cleaner with the hose on the blower part (rather than the intake). The reason is that the air from these devices isn't clean. Cleaning the Mac with one would be like taking a bath in muddy water. While compressed air isn't particularly cheap, the proper tools are well worth the money.

The Mac is famous for its crystal-clear graphic images. Dust and smeared fingerprints on the Mac's video display tube can dull the images. But don't be like most Mac owners and wipe down the Mac's screen with glass cleaner. Glass cleaner contains chemicals that can wreak havoc on the Macintosh screen, which has a special plastic antiglare coating. Your best bet is to use an antistatic cloth or cleaning solution specifically designed for use on computer cathode-ray tubes (CRTs). The biggest advantage of this type of cleaner is that it repels dust, while the solution in regular glass cleaner attracts dust.

The Wash-and-Wear Mouse

Now that the exterior of the Macintosh is bright and shiny, it's time to turn to the mouse. If you've never cleaned the Mac's mouse, do it now. In fact, to avoid potential trouble, clean the mouse weekly.

You'll know you have a dirty mouse if the on-screen pointer skips when you move the mouse. In its worst condition, a dirty mouse moves the pointer in one direction only, or it doesn't move the pointer at all.

If you find the mouse gets dirty more often than it should, it's likely that you're not using it on the proper surface. The best surfaces are tables and desktops of varnished (but not waxed) wood, Formica, or metal.

Macintosh Troubleshooting

	Problem	Symptoms	Possible Causes	Cures
The Mac	Blank screen	Screen won't light	1. Mac unplugged	1. Plug Mac into known good outlet; check power plug that connects to Mac
			2. Brightness control too low	2. Turn brightness control up
			3. Internal fuse blown	3. Take Mac to repair shop
	Mac won't start	Mac shows disk icon with an "X" inside	1. Disk bad	1. Check with known good disk
			2. Drive heads dirty	2. Clean drive heads
			3. Faulty start	3. Turn Mac off and on again and reinsert disk
		Mac shows Mac icon with frowning face	1. Disk is not startup disk	1. Turn Mac off and on and restart with startup disk
			2. Startup disk bad	2. Turn Mac off and on and restart with known good startup disk
		Finder won't load; Mac "crashes" or stops working	1. Desktop file damaged	1. Turn Mac off and on; restart, holding down ⌘ and Option keys until Finder loads
			2. Disk damaged	2. Try the above. If it doesn't work, disk may be damaged beyond use
	Lines in screen	Screen displays garbage, like wavy lines or odd characters	1. Program crashed	1. Turn Mac off and restart program
			2. Disk bad	2. Turn Mac off, eject disk (by holding down mouse button while turning on Mac) and insert new one
			3. Drive heads dirty	3. Clean drive heads
			4. Hardware problem	4. Take Mac to repair shop
	Pointer inactive	Moving mouse doesn't move pointer	1. Mouse not plugged in	1. Plug mouse in, check for bad connection
			2. Mouse dirty	2. Clean mouse
			3. Program crashed	3. Turn Mac off and restart program
			4. Mouse faulty	4. Take mouse to repair shop
			5. Mac faulty	5. Take Mac to repair shop
	Keyboard inactive	Typing on keyboard does nothing, or doesn't always work	1. Keyboard not plugged in	1. Plug in keyboard; check for tight connection on keyboard and Mac
			2. Keyboard dirty	2. Clean keyboard
			3. Program crashed	3. Turn Mac off and restart program
			4. Keyboard faulty	4. Take keyboard to repair shop
			5. Mac faulty	5. Take Mac to repair shop

	Problem	Symptoms	Possible Causes	Cures
The Disk Drive(s)	Drive won't record data	Disk won't take on any data	1. Disk locked	1. Eject disk (⌘-Shift-1 for internal drive; ⌘-Shift-2 for external drive), unlock disk, and reinsert
			2. Disk full	2. Eject disk and insert new one
			3. Disk damaged	3. Eject disk and insert new one
	Drive won't read data	Drive spins and seems to work but nothing can be retrieved from it	1. Drive dirty	1. Clean drive head
			2. Disk bad	2. Check with known good disk
	External drive doesn't work	External drive plugged in but won't run	1. Connection faulty	1. Check for tight connection between Mac and drive
			2. Drive faulty	2. Take drive to repair shop
The Imagewriter	Power off	Imagewriter won't turn on; Power light won't glow	1. Imagewriter not plugged in	1. Plug into known good outlet; check power plug to Imagewriter
			2. Fuse blown	2. Replace fuse (2 ampere, 3AG)
	Imagewriter won't print	Imagewriter is on but won't print	1. Imagewriter deselected	1. Press Select button so that Select light glows
			2. Connection bad	2. Check connection of cable
			3. Carrier cover off	3. Replace cover; press Select button
			4. Paper ran out	4. Put in more paper
			5. Paper-out detector dirty	5. Clean detector
			6. Program not working	6. Try printing again
			7. Imagewriter faulty	7. Take Imagewriter to repair shop
	Paper jams	Paper keeps jamming in mechanism	1. Paper not inserted correctly	1. Realign and reinsert paper
			2. Too much back tension on paper	2. Make sure paper feeds smoothly
			3. Paper path blocked	3. Clean path of paper bits
	Print weak	Imagewriter prints, but quality is poor	1. Ribbon bad	1. Replace ribbon
			2. Head-to-platen control misadjusted	2. Readjust head-to-platen control for proper paper thickness (see Imagewriter manual for details)
			3. Impression and alignment misadjusted	3. Take Imagewriter to repair shop

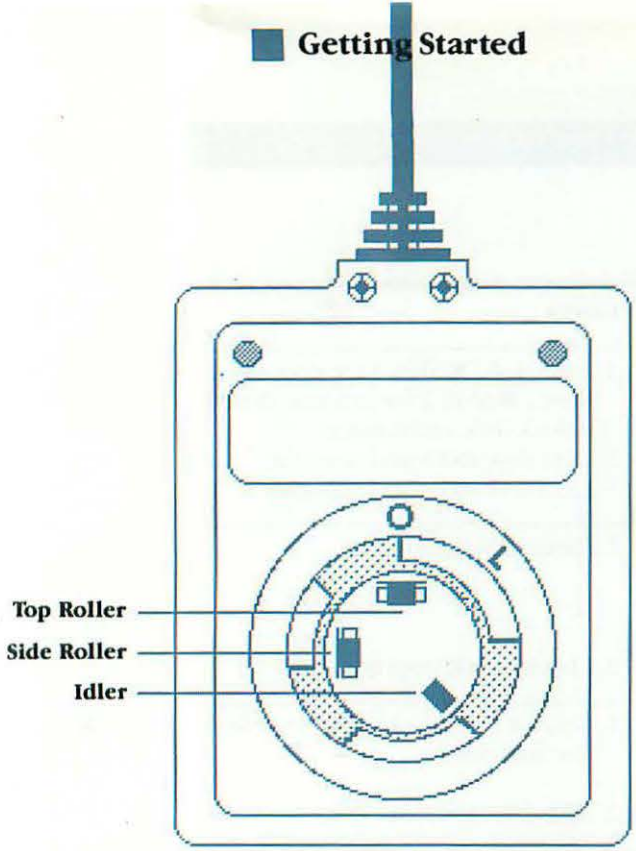


Figure 2
There are three rollers inside the mouse, which when dirty can cause the pointer on the Mac's screen to jump.

You can also use a plastic or resin pad. Some computer stores carry these pads; you can also buy them at plastics outlets. A marble pastry board isn't a bad surface either.

Whatever you do, avoid using the mouse on cloth and paper surfaces, including desk blotters and calendars. The ball in the underbelly of the mouse can pick up lint and paper fuzz from these, which can interfere with the inner workings of the mouse.

To clean the mouse, open it by turning it upside down and twisting the black plastic baseplate counterclockwise. The small (and nearly invisible) nub on the baseplate should line up with the "O" printed on the bottom of the mouse.

Flip the mouse over again, but be sure to catch the baseplate–and the rubber ball that comes out with it–in your palm. Be careful with the rubber ball when it's out of the mouse. It's not a golf ball, and yes, the cat would really enjoy playing with it. Needless to say, both activities would ruin the ball and make your mouse useless.

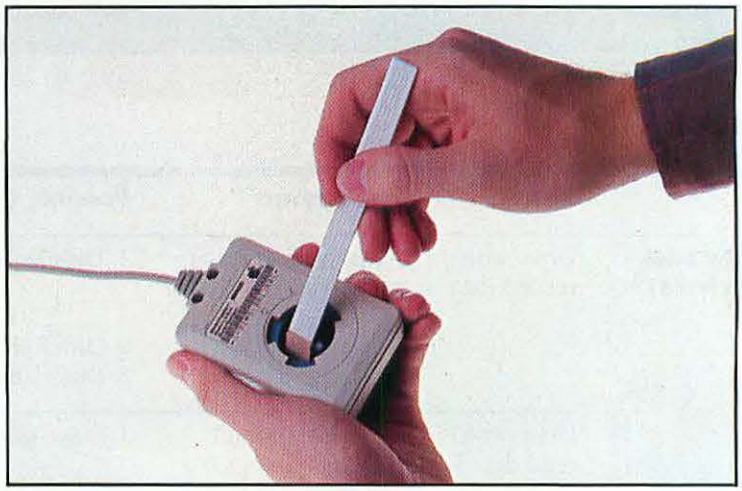


Figure 3
The best tool for cleaning the mouse's rollers is a videocassette recorder cleaning kit.

Inside the mouse are three rollers, two of which are hooked up to the mouse's built-in sensing electronics (see Figure 2). When these rollers are dirty, they cause the pointer to skip and jump. Unfortunately, the rollers often need more than a quick wipe with a cloth. The best way to clean them is with a videocassette recorder cleaning kit (the kind designed to clean video heads). These kits include chamois-tipped or sponge-tipped cleaning wands and a bottle of cleaner containing alcohol and Freon. A second choice for mouse cleaner is plain rubbing alcohol.

To clean the rollers, wet the tip of the wand with the cleaner and gently rub each roller. Repeat the process several times to make sure all the accumulated dust and oil is removed (see Figure 3).

The Freon in video head cleaner is noncaustic and nonflammable, so there's no need to worry about getting some on the plastic parts of the mouse. But go easy with it. Freon cleaner is strong stuff; just a dab will do. And remember to replace the cap on the cleaner bottle as quickly as possible. Freon is volatile and evaporates quickly.

Before you put the mouse back together, take a can of compressed air and give the inside of the mouse a few shots of oxygen. Wipe the ball clean with the lintless cloth (see Figure 4). Replace the ball in the mouse (avoid undue handling, which will get it oily) and slip the baseplate back on. Twist the baseplate clockwise until it locks into position. The nub should line up with the "L."

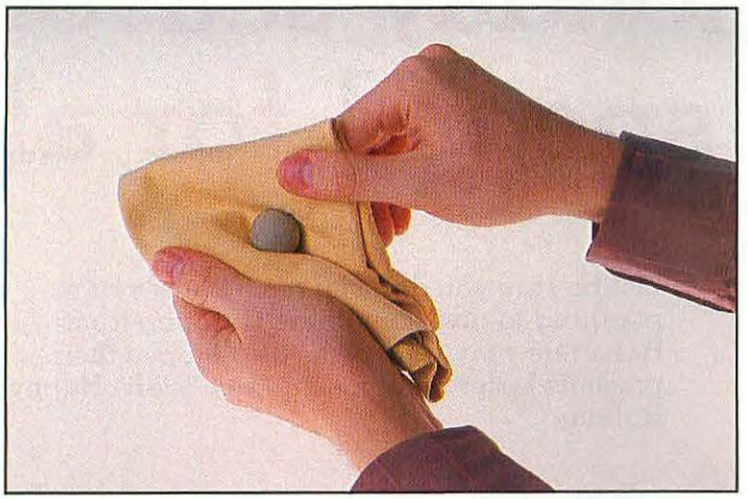


Figure 4
The rubber ball in your mouse should be handled carefully. Clean it with a soft, lint-free cloth.



Figure 5
It's important to clean your Mac's disk drive head regularly. The best way is to use a special disk drive cleaning kit.

The Delicate Disk Drive

Of all the parts of the Mac to keep clean, the disk drive is the most important and most difficult. The Mac's disk drive, as you probably know, uses a magnetic head to record information on a thin flexible platter. The platter is coated with the same substance used in video- and audiocassette tapes.

The coating, whether it's on media meant for sound, pictures, or data, has a tendency to flake off over time. What's worse, the flakes build up on the surface of the head, making it hard for the drive to record and play back information. Therefore, you should routinely clean the head to remove the built-up coating.

The head in the Mac's drive is hard to reach, and while you could use a video head cleaning wand, an easier way exists. Use a disk drive cleaning kit. Several companies offer cleaning kits for the Mac's 3½-inch drive (see "Suppliers of Cleaning Accessories"). And contrary to what you may have heard, there is no harm in using them.

The cleaning kits for the Mac drive use a wet or wet/dry cleaning method (in contrast to dry, abrasive cleaning, which can harm drive heads). A cleaner is sprayed onto a fiber-based platter, which is then inserted into a holder (see Figure 5). The holder is placed in the drive, where the disk inside spins and cleans the head. The exact routine varies, depending on the kit you buy. If you use one of these kits, you will probably spend only a dollar or two each time you clean the Mac drive. The effort is worthwhile, because most computer technicians charge $50 to $60 for a single cleaning.

How often should you clean the Mac's disk drive head? If your use of the Mac is average, the head doesn't need cleaning more than once or twice a month. If you use your Mac infrequently, you'll be able to get by with cleaning the head every three to six months.

The Whole Mac

What other parts of the Mac should you clean? If you have an Imagewriter, keep it in top working order by cleaning it every week (see "Toward a Cleaner Imagewriter"). If you've been blessed with an external disk drive, don't forget to give it the same treatment you give the Mac's internal drive.

If, for any reason, the Mac, the Imagewriter, or the external drive doesn't work properly, refer to the "Macintosh Troubleshooting" chart. Take your time diagnosing the problem. Most of the time the problem is simple: a blown fuse, a loose connection, or a faulty extension cord. Many difficulties, especially those concerning the disk drive or the Imagewriter, are caused by poor preventive maintenance–in short, insufficient cleaning. Before taking your Mac and its accessories to a repair shop, clean everything in sight. □

■■■■■■■■■■■ *Gordon McComb is the author of the* Macintosh User's Guide *(Howard W. Sams) and a frequent contributor to* Popular Science *and the* Computer Buyer's Guide and Handbook.

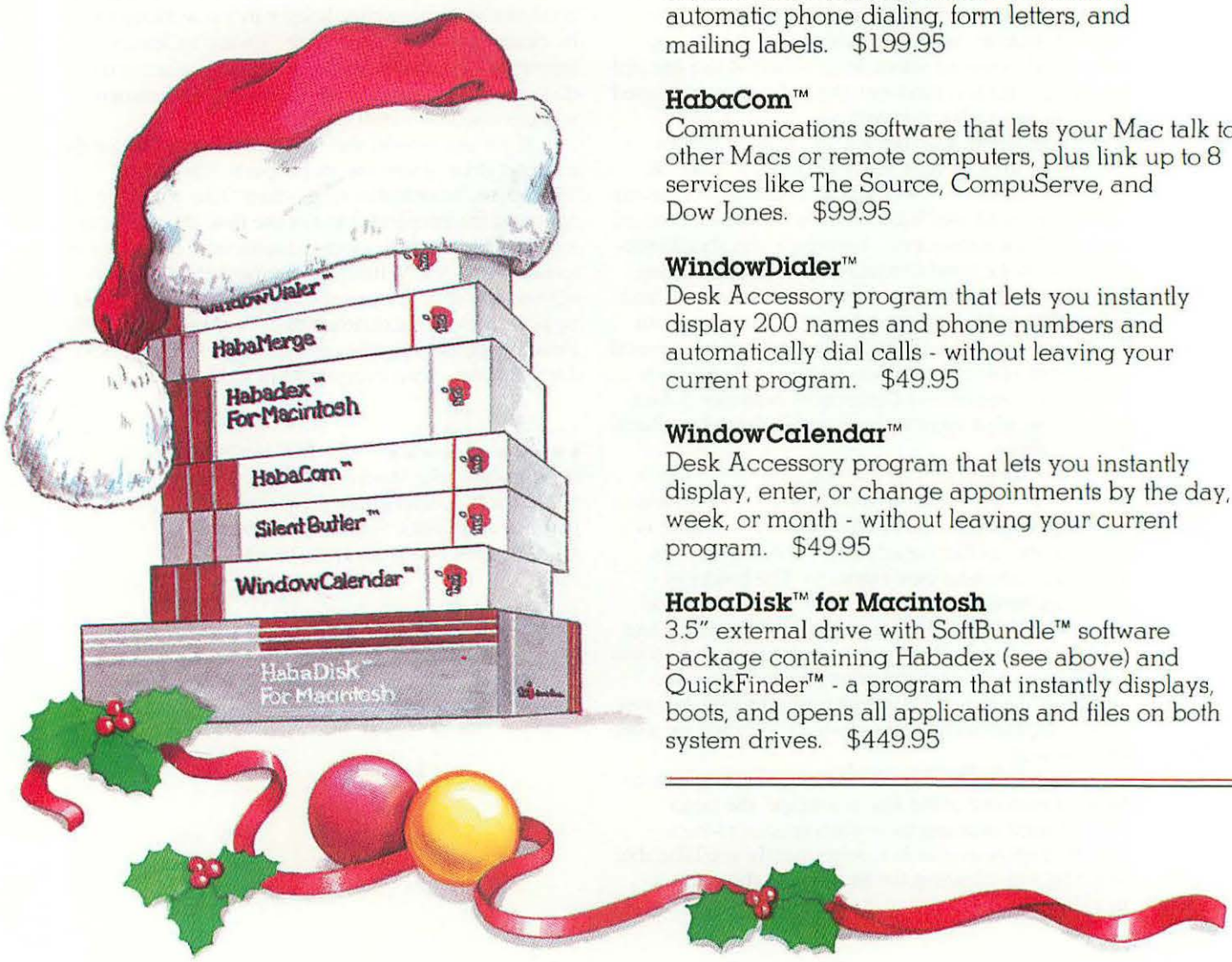
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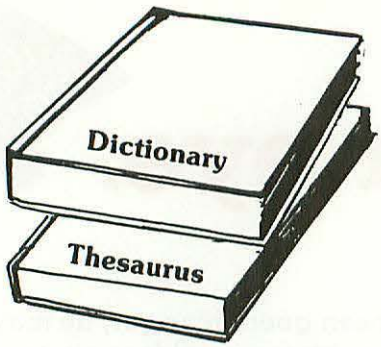
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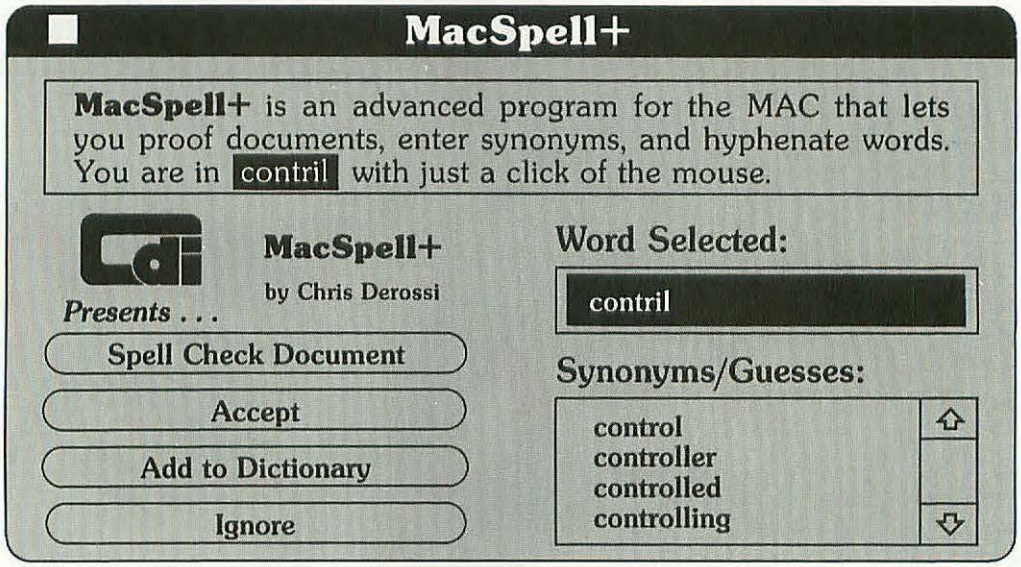
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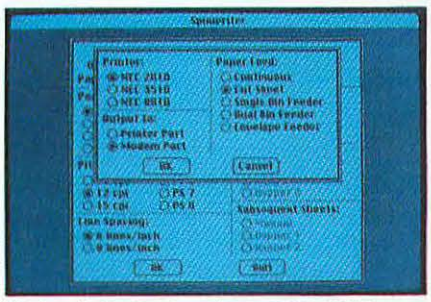
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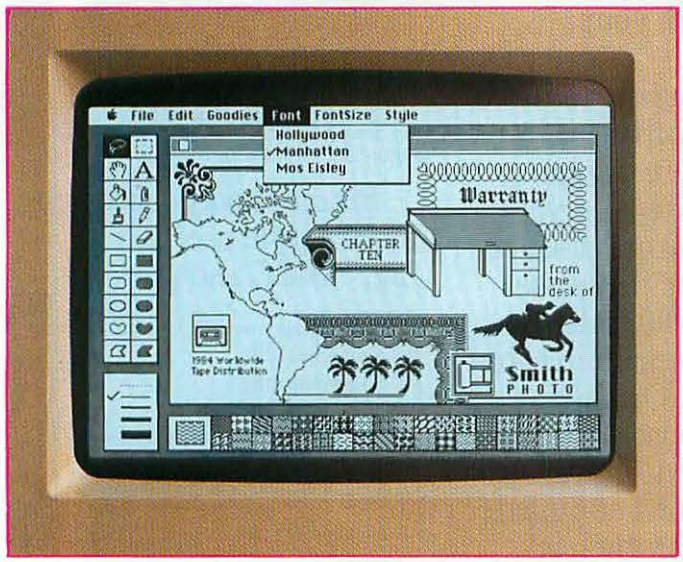
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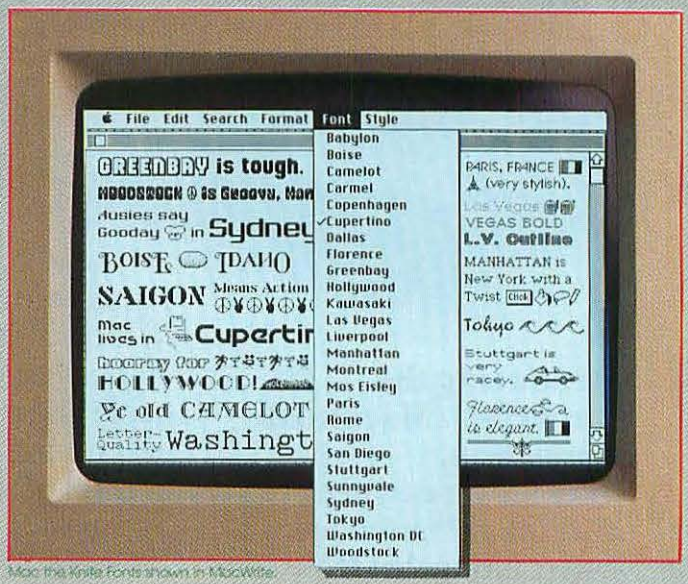
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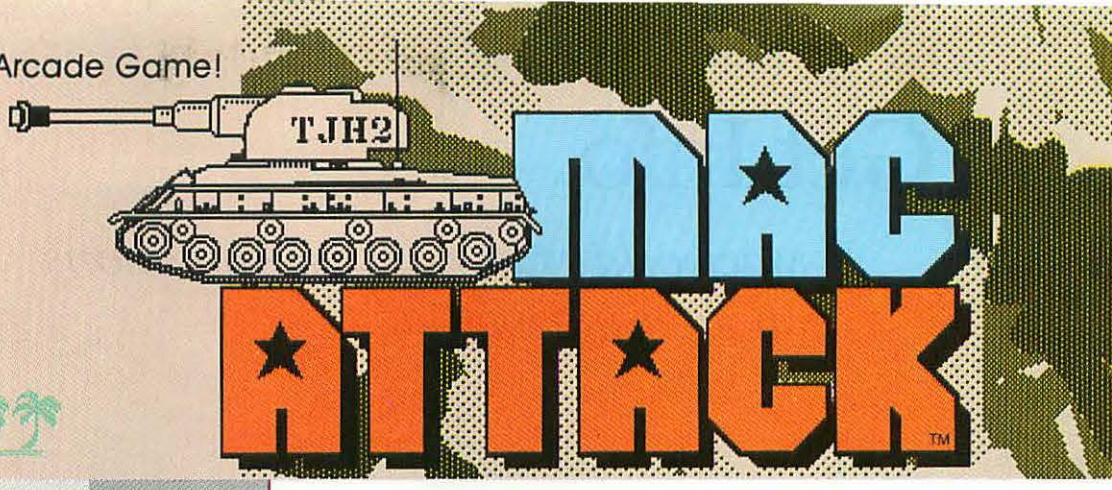
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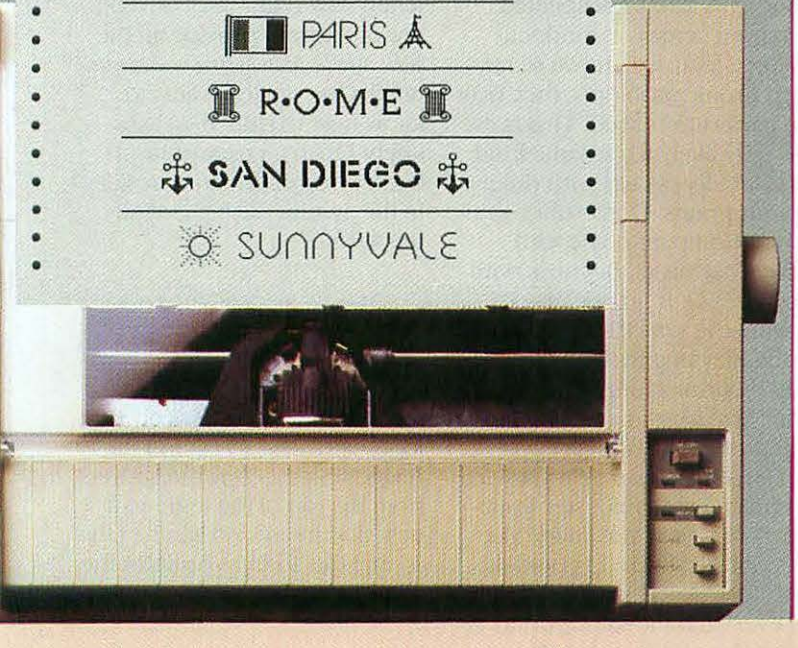
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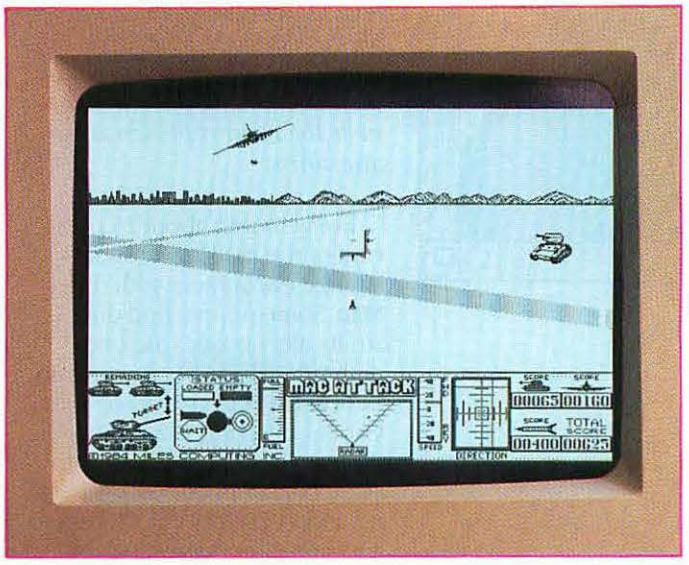
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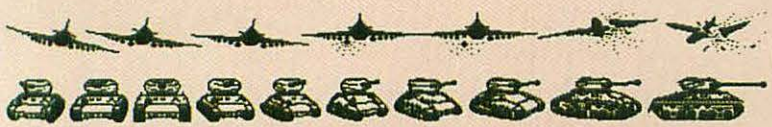
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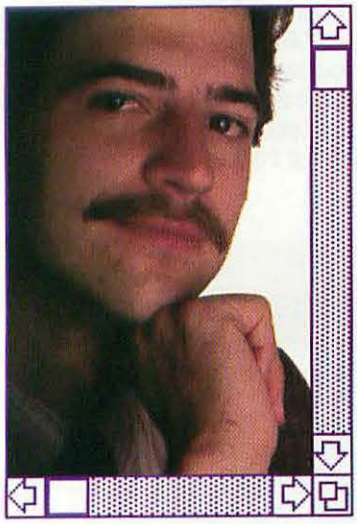
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Get Info

Macworld's tutor answers questions about using the Mac

Lon Poole



Get Info *answers questions about the Macintosh and how it works. Most inquiries deal with application programs, but no topic is too elementary or too advanced. Discussions range from setting up the Mac to programming in BASIC and Pascal. When you need advice about using the Mac, drop me a line. I cannot respond to individual letters, but I will answer the most representative questions.*

Every month about 25 percent of the mail I get reports strange encounters with the Mac. Some people find dire-straits alert boxes (the ones with a bomb icon) cropping up, indicating bugs in the software. Others describe symptoms–such as the screen filling with static or documents not being reliably copied from one disk to another–that suggest hardware malfunction.

We'd all like to think that the Mac is flawless, but of course it's not. You won't see any halos hovering over the heads of the Mac's design team. The Mac's hardware and software designers have done a great job, but they have also made some mistakes. Don't be surprised if you discover that your Macintosh behaves strangely now and then. A computer and its software are complex products, so don't expect them to have the personality and reliability of an electric toaster. And certainly Apple and the third-party software and hardware developers want to make their products as bug-free as possible.

In the meantime, what can you do about these hidden faults? Saving your work to disk regularly and backing up valuable information can protect your work from unexpected program errors or "undocumented features." If you're having chronic problems, they may be hardware-related. This is especially likely if the same kind of difficulty occurs with different programs. Don't suffer in silence. Compare notes with other Mac users, or check with your dealer. If no one else is having the same trouble, something may be physically wrong with your machine. Getting your Mac fixed may eliminate the problem.

Don't misconstrue my advice as an attempt to sidestep your questions or cover up for Mac developers. Even if I could duplicate, research, and respond to every individual reported error or breakdown, my answer would not help the next time you discover an unexpected problem. You must accept the fact that there will be times when you have to simply shrug your shoulders, grit your teeth, and go back to the most recent disk version of your work.

This month's column answers five questions. An avid letter writer is looking for a quick, simple way to print envelopes in *MacWrite*. A second person noticed that pictures printed by *MacWrite* are stretched from left to right and wants to correct the distortion. A new *MacPaint* user can't figure out how to provide all the disk space *MacPaint* seems to need. One person wants to know how to ship Mac disks safely. Finally, a user wants to know what information resides in the System file besides all the fonts.

Addressing Envelopes

Q. I've had trouble finding the best way to address envelopes with *MacWrite* and the Imagewriter. I copy the address from the top of the letter to a new document and set the tabs so that the address prints at the

proper place on an envelope. It would be more convenient if I could select the address on the letter and print just the selected text. The time saved may seem trivial until you are faced with 10 to 15 letters every day. Can you help?
Johathan Wommack
Napa, California

A. The fastest and simplest method for addressing an envelope is similar to the one you now use. Before printing your letter, try the following:

- Scroll to the beginning of the document by dragging the scroll box to the top of the scroll bar.
- Select all lines of the address and choose Copy from the Edit menu to place a copy of the address in the Clipboard.
- Scroll to the end of the letter by dragging the scroll box to the bottom of the scroll bar. Don't worry if you can't see the letter in the document window. It's only temporarily out of view.
- Click on an insertion point at the end of the letter by placing the pointer anywhere past the end of the letter and clicking the mouse button. When you click past the end of a document, *MacWrite* automatically puts the insertion point after the last character in the document.
- Choose Insert Page Break and then Insert Ruler from the Format menu. Choosing these options creates a new page with its own formatting ruler, below which you can insert the address.
- Choose Paste from the Edit menu, putting a copy of the address below the new ruler.
- Drag the indent marker to about the 3½-inch mark on the ruler. The copied address shifts to the right, lining up with the new position of the marker.

The letter is now set up to print the address on a separate page. You can change the letter before printing it without affecting either the position or the accuracy of the envelope address. Change the envelope address to 12- or 14-point size if you prefer, even if the letter's text is in a smaller size.

To print on single sheets of paper, follow these steps:

- Choose Print from the File menu. In the Print dialog box that appears, select the print quality you want.
- Select the All and Cut Sheet paper feed options and click the OK button to begin printing.
- *MacWrite* displays a dialog box to advise you each time you must feed another sheet of paper into the printer.
- After you have printed the last page of the letter, *MacWrite* asks you to insert another sheet of paper for the address. Put an envelope in the printer instead of another piece of paper.

You may have to experiment at first with the left-right alignment of the envelope in the printer and with the indent marker position in the ruler to get the correct address position. Once you learn a combination that works, this method should prove superior to the one you have been using.

As for a return address on a number 10 (business-size) envelope, your best bet is a rubber stamp. Although you can print the address using *MacWrite,* the process involves some finagling with sideways printing.

Distortion Dilemma

Q. I have noticed that when I create a drawing in *MacPaint* and paste it into a *MacWrite* document, the Imagewriter produces distortion in the drawing. This problem is particularly obvious when you work with circles such as pie charts. The circles end up vertically elongated and appear as ellipses. The distortion does not appear on the Mac's sreen, however. Why does this happen, and is there a cure?
Manuel V. Key
Clayton, Ohio

A. You can get correctly proportioned pictures in a printed *MacWrite* document. Before printing, choose Page Setup from the File menu. In the dialog box that appears, select Tall Adjusted. The next time you print, the circles will look like circles—not ellipses.

The Tall Adjusted print mode does have some side effects, however. The whole document—text as well as pictures—is widened about 13 percent on the printed page. For example, text that was supposed to take 5¾ inches will take 6½ inches. The expanded characters that result from selecting Tall Adjusted are somewhat lower in quality than the characters produced with the Tall option. The degree of difference in quality depends on the font, font size, and quality (high or standard) chosen in the Print dialog box. By the way, the Wide option has the same proportions as Tall Adjusted.

MacPaint's Big Appetite

Q. I have a *MacPaint* disk that contains one 25K document and 60K of usable storage space. But as I work on the document, I get notices that I am running out of disk space. When I acknowledge the alert box, I am returned to the desktop. Why?
Tony Bernhard
Davis, California

A. In an earlier column (*Get Info,* May/June) I explained that *MacPaint* needs lots of elbow room on the disk–as much as 102K. To make that kind of space available on a one- or two-drive Mac, you have to set up a *MacPaint* application disk that contains nothing but *MacPaint,* the System Folder, and the Empty Folder.

You can set up such a disk by dragging all the other icons into the Trash. Even then, a System file with extra fonts or font sizes or a Scrapbook with lots of clippings can reduce available disk space to 95K or less. All your documents should reside on separate data disks containing nothing but an Empty Folder.

With a single-drive Mac, using a separate data disk involves swapping disks whenever you open or save a document. The larger the document, the more you have to swap disks to open or save it. Choosing Open or Save As from the *MacPaint* File menu presents a dialog box that includes an Eject button. Clicking the Eject button ejects the currently inserted disk (usually the application disk). After the disk is ejected, remove it and insert a storage disk on which to save or open a document. The name of the inserted disk appears just above the Eject button.

With a two-drive Mac, you can put the data disk in one drive and the *MacPaint* application disk in another. No disk swapping is required. The Mac switches between the drives as needed. And the Mini-Finder that appears when you choose Open or Save As (or Save if the document is new) includes a Drive button. You click the Drive button to select the drive used for opening or saving. The name of the currently selected drive appears above the Eject button, as usual.

Mailing Disks

Q. I would like to send some disks that contain important information to a friend in another city. He told me I could just drop them into a padded envelope, but I am worried about the stamping machines and magnetic fields used by the postal service. How should I package the disks?
Stewart Abramson
Philadelphia, Pennsylvania

A. Your disks are safest if you send them in padded envelopes. If you do lose a disk because of rough handling, you can always send a copy (remember to make a backup). Backup disks are the most effective form of insurance against the perils of shipping–better than the fanciest disk mailer you can buy.

The postal service uses stamp-canceling machines, but you can elude them by printing "Hand Cancel" near the stamp. The postal service also uses magnetic fields and X-rays of unknown intensity for undisclosed purposes. If the thought of putting your disks through this exposure disturbs you, write "Do Not X-Ray–Contains Sensitive Computer Data."

Inside the System File

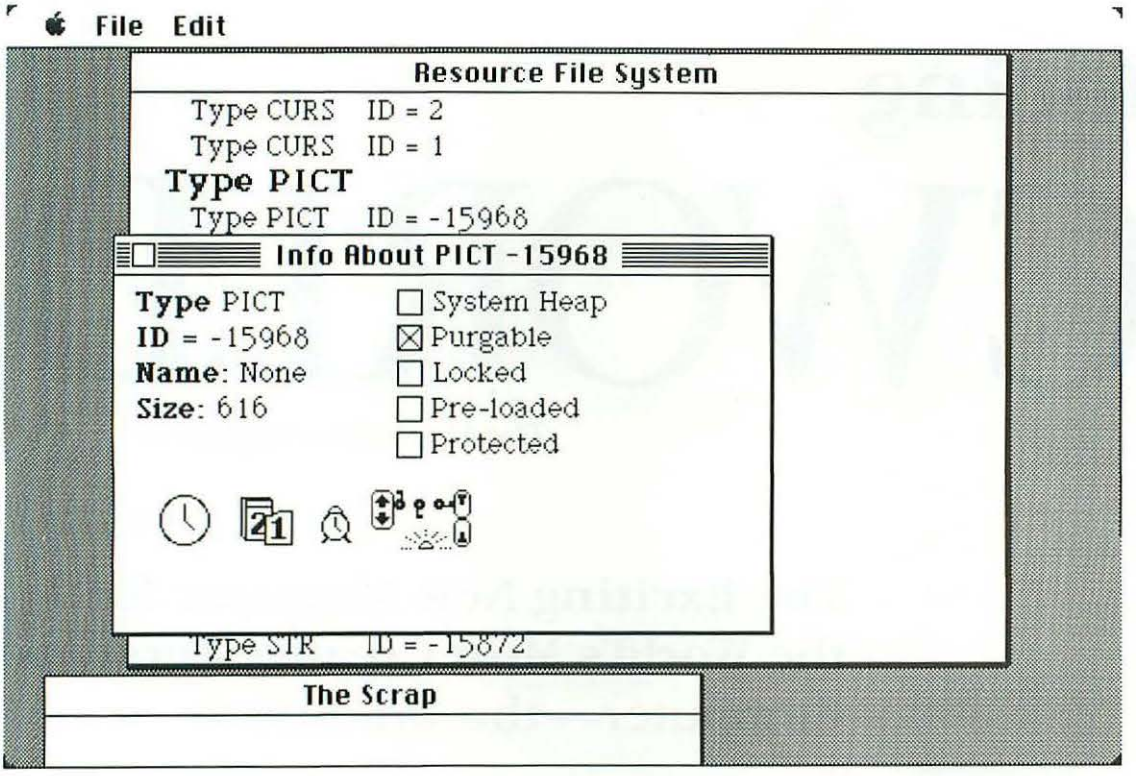
Q. According to the Get Info window, the System file on my *MacPaint* disk contains 132,608 bytes. The Font Mover utility indicates that the fonts use 74,630 bytes of the System file, but what's using up the other 57,978 bytes on my disk?
Bert Farnsworth
Chattanooga, Tennessee

A. Although the System file seems to be a disk space hog, it actually conserves disk space. The System file serves as a public library of useful information for many programs. In addition to fonts, it contains definitions of what windows, pointers, icons, buttons, and scroll bars look like. These pieces of information are called resources, and the System file is also called a resource file.

Unlike a real library, however, the System file lends unlimited copies of its resources to application programs and never expects the resources to be returned. Every program can hold a private collection of resources (resource file), but these private collections need never duplicate the resources stored in the System file. The System file actually saves disk space because application programs don't need to duplicate resources stored in the System file.

The following resources are present in a System file on the Macintosh System disk or a *Write/Paint* disk.

- Icons used in System dialog and alert boxes.
- Templates that describe the contents of some dialog and alert boxes.
- Identities of fonts that can't be removed.
- Pictures used in the Control Panel and Alarm Clock desk accessories.
- Standard patterns for the desktop pattern and every new *MacPaint* document.
- The pattern used in the scroll bar elevator.
- The current desktop pattern.
- Four pointer shapes: the I-beam text pointer, the cross, the wristwatch, and the thick cross.
- Assorted bits and pieces of text, such as "Note Pad File" and "Version 1.1 24-Apr-84."
- Programming that converts a number from its internal form (binary) to a form that can be displayed or printed (ASCII), and vice versa.



System Resources

The Resource Mover is a program development tool that lets you examine and edit the resources contained in the files on disk. Each resource has unique attributes, such as an ID number and type specification. This info window shows the graphic elements and attributes that make up the Alarm Clock desk accessory, which resides in the System file.

- Programming that calculates transcendental math functions such as sine and logarithm.
- Programming that performs arithmetic on numbers with fractions, such as 34.82 (floating-point numbers).
- Programming that handles the Open, Save, and Save As commands from the File menu.
- Programming that initializes a disk.
- Programming for the desk accessories.
- Programming for the ⌘-Shift-3 and ⌘-Shift-4 screen snapshot features.
- Programming that constructs controls, such as scroll bars and buttons.
- Words inside displayed buttons.
- Programming that constructs pull-down menus.
- Words displayed inside menus.
- Programming that constructs the regular windows with square corners and striped title bars.
- Programming that constructs desk-accessory-style windows with rounded corners and black title bars.
- Programming for adapting the Mac to international locations, including alphabetizing rules, formatting dates and times, and punctuating numbers.
- Programming to drive the currently selected printer.
- Programming to transfer the Control Panel settings from battery-powered memory to regular memory and to fix errors in the 64K ROM.

Next to the Macintosh fonts, the desk accessories occupy the most disk space. The Scrapbook uses 2824 bytes (excluding clippings), the Alarm Clock uses 3392 bytes, the Note Pad uses 2418 bytes (excluding your notes), the Calculator 2444 bytes, Key Caps 1586 bytes, the Control Panel 4028 bytes, and the Puzzle 932 bytes.

All the desk accessories but one (any one) can be removed without adversely affecting the Mac. You can swap desk accessories using the program *Desk Accessory Mover* by Donald Brown, which does for desk accessories what the Font Mover does for fonts. The price is $15, payable on approval. Contact CE Software, 801 73rd St., Des Moines, IA 50312, 515/224-1995. None of the other resources in the System file is expendable.

Send your questions to Get Info, Macworld, *555 De Haro St., San Francisco, CA 94107.* □

Lon Poole is a Contributing Editor of Macworld *and the author of several computer books, including* The Apple II Users Guide *and* MacWork/MacPlay.

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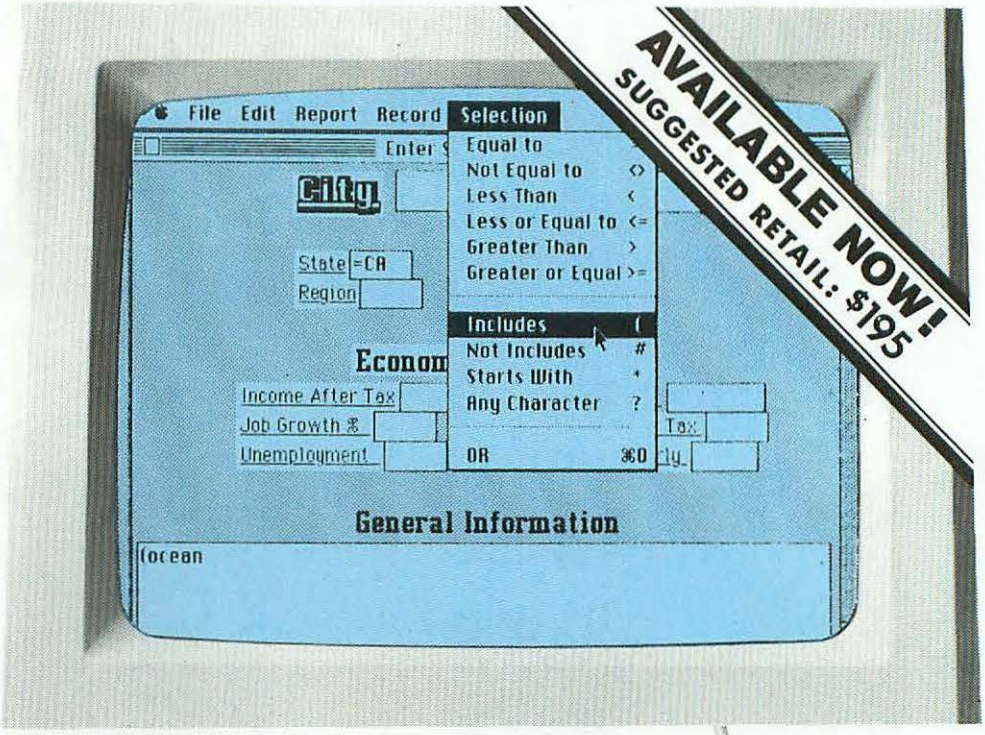
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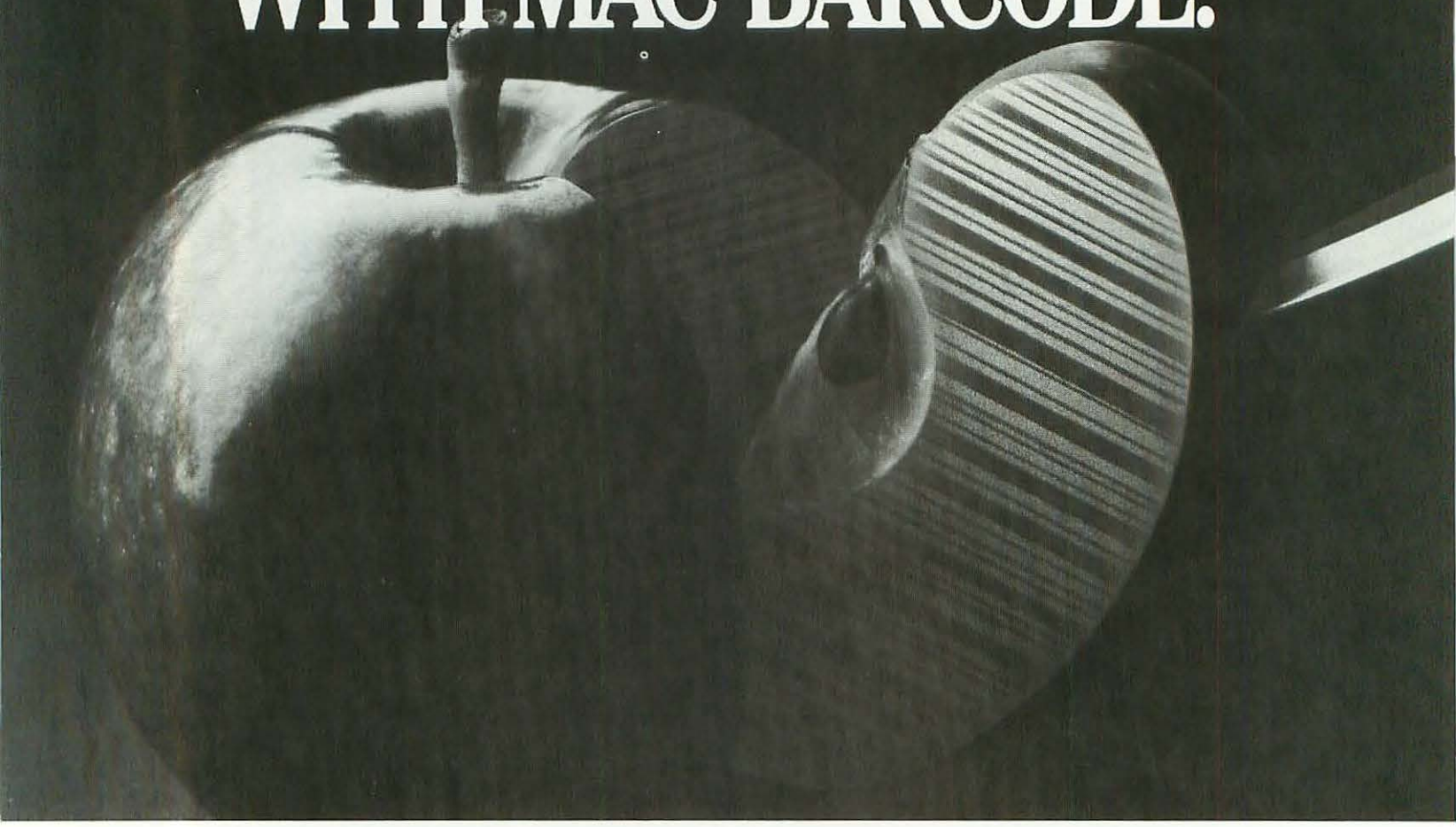
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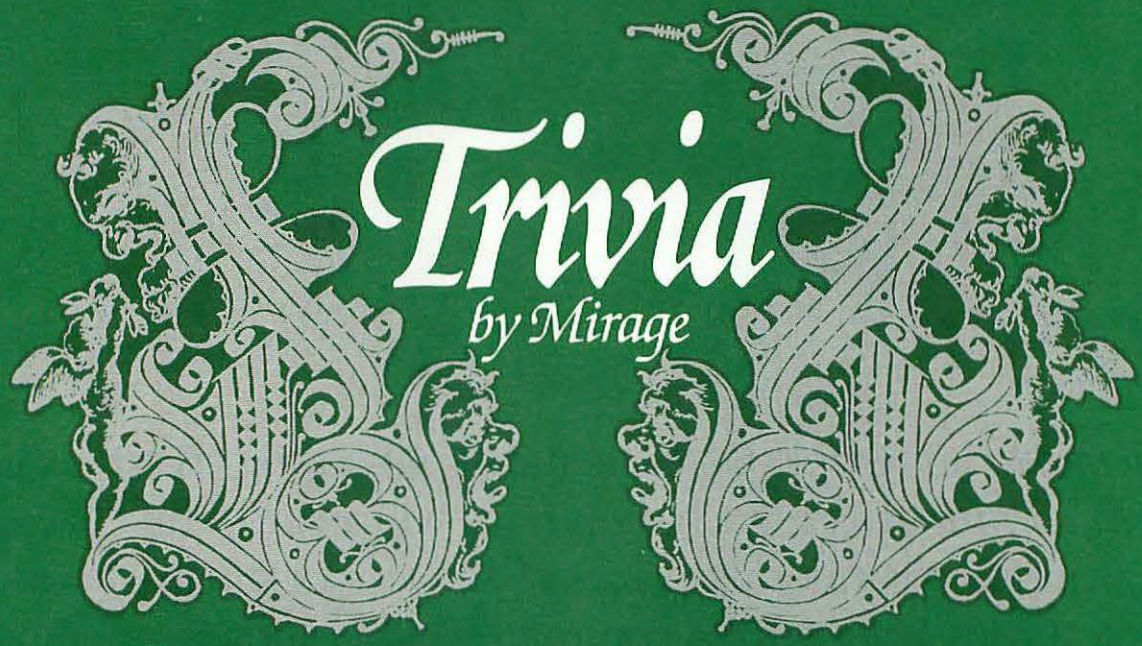
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Macworld Art Contest

Macworld and Apple Computer are sponsoring an art contest for *MacPaint* artists. Each month we will award a first prize of $500 and two runner-up prizes of $250 for original artwork created with *MacPaint.* A committee of five judges–members of *Macworld*'s editorial and art departments, as well as Susan Kare, Apple's resident artist–will view the entries and select the winners. Gallery exhibitors who do not win a prize will receive the standard $25 payment for each drawing used.

Once a year the first-place entries from each issue will again be judged, and a grand prize of $5000 and two runner-up prizes of $2500 will be awarded. The first grand prize will be announced in the November 1985 issue of *Macworld.*

To enter the contest, send a paper copy of your artwork and a detailed description of the techniques you used to create it to *Macworld Gallery,* 555 De Haro St., San Francisco, CA 94107. Please include your address and phone number with each submission. If your drawing is selected, we will ask you to send a copy of it on disk. All disks become the property of *Macworld.*

The art contest is co-sponsored by Macworld *magazine and Apple Computer, Inc. Employees of CW Communications and Apple Computer and their families may not enter the contest. Winning drawings become the property of Apple Computer.*

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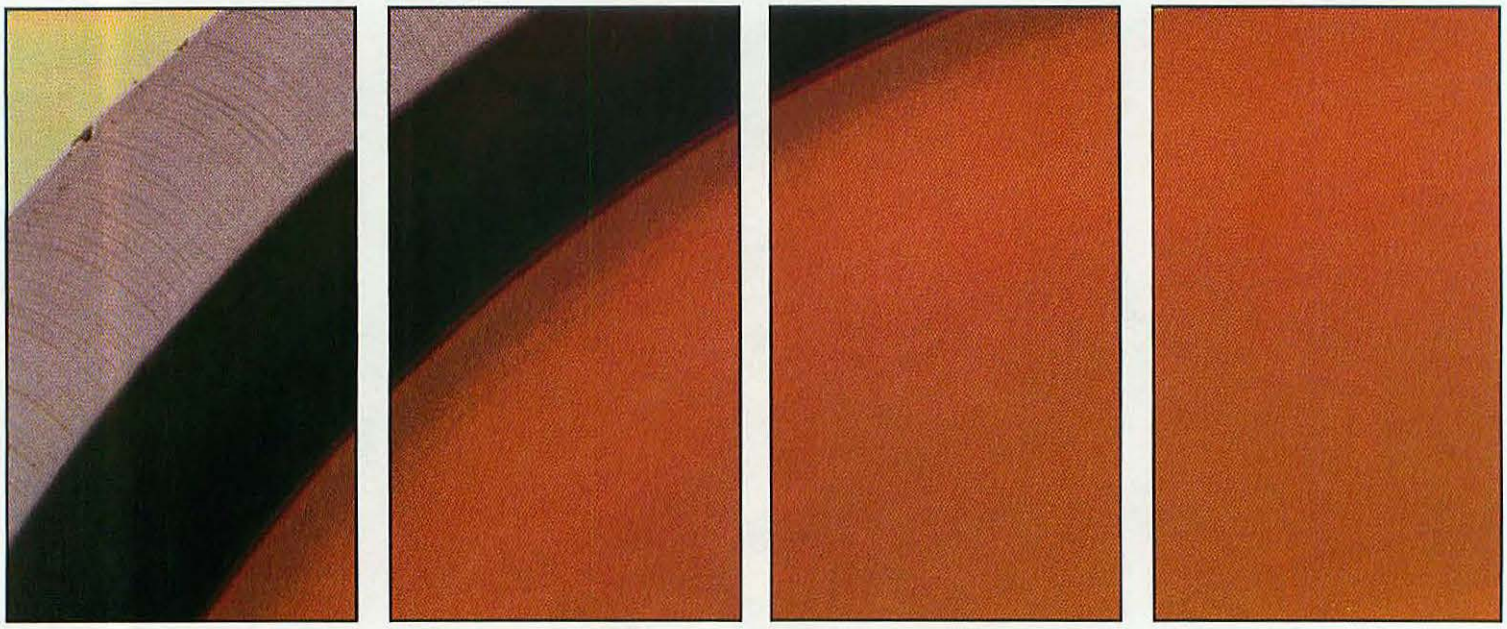
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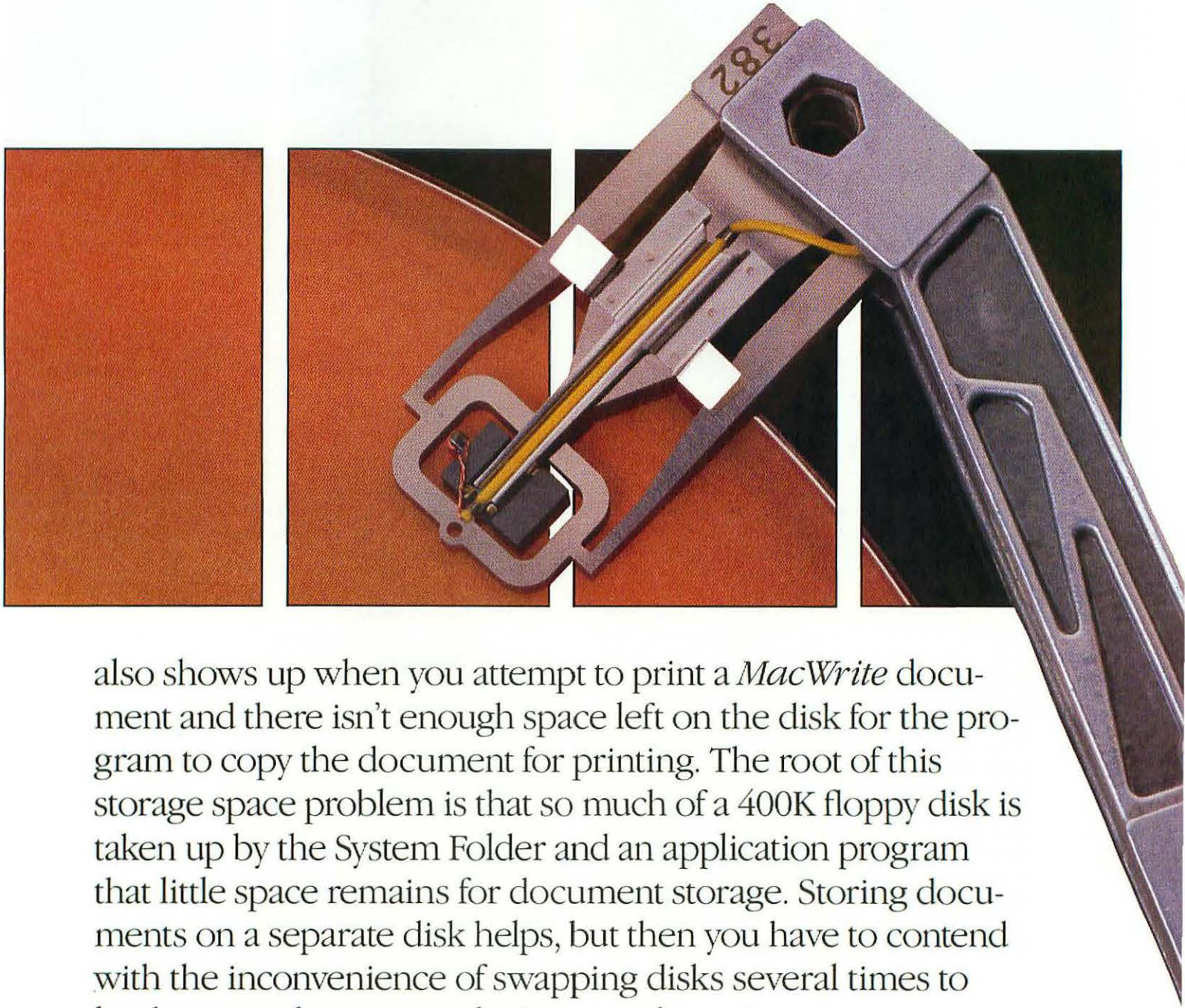
Shifting into Overdrive

Danny Goodman



In many of life's routine acts, misfortune lies hidden. If you play *Monopoly,* you eventually draw the card that tells you to go to jail. If you drive a car, some day you're certain to reach for your keys and realize you've locked them in the car. If you work with the Macintosh, an alert box occasionally appears and informs you that the disk you're using is full or almost full (see Figure 1).

You probably see the "disk full" message most often when you're adding details to a *MacPaint* document and less than 20K of storage space remains on the disk. The message



also shows up when you attempt to print a *MacWrite* document and there isn't enough space left on the disk for the program to copy the document for printing. The root of this storage space problem is that so much of a 400K floppy disk is taken up by the System Folder and an application program that little space remains for document storage. Storing documents on a separate disk helps, but then you have to contend with the inconvenience of swapping disks several times to load or save documents during a work session.



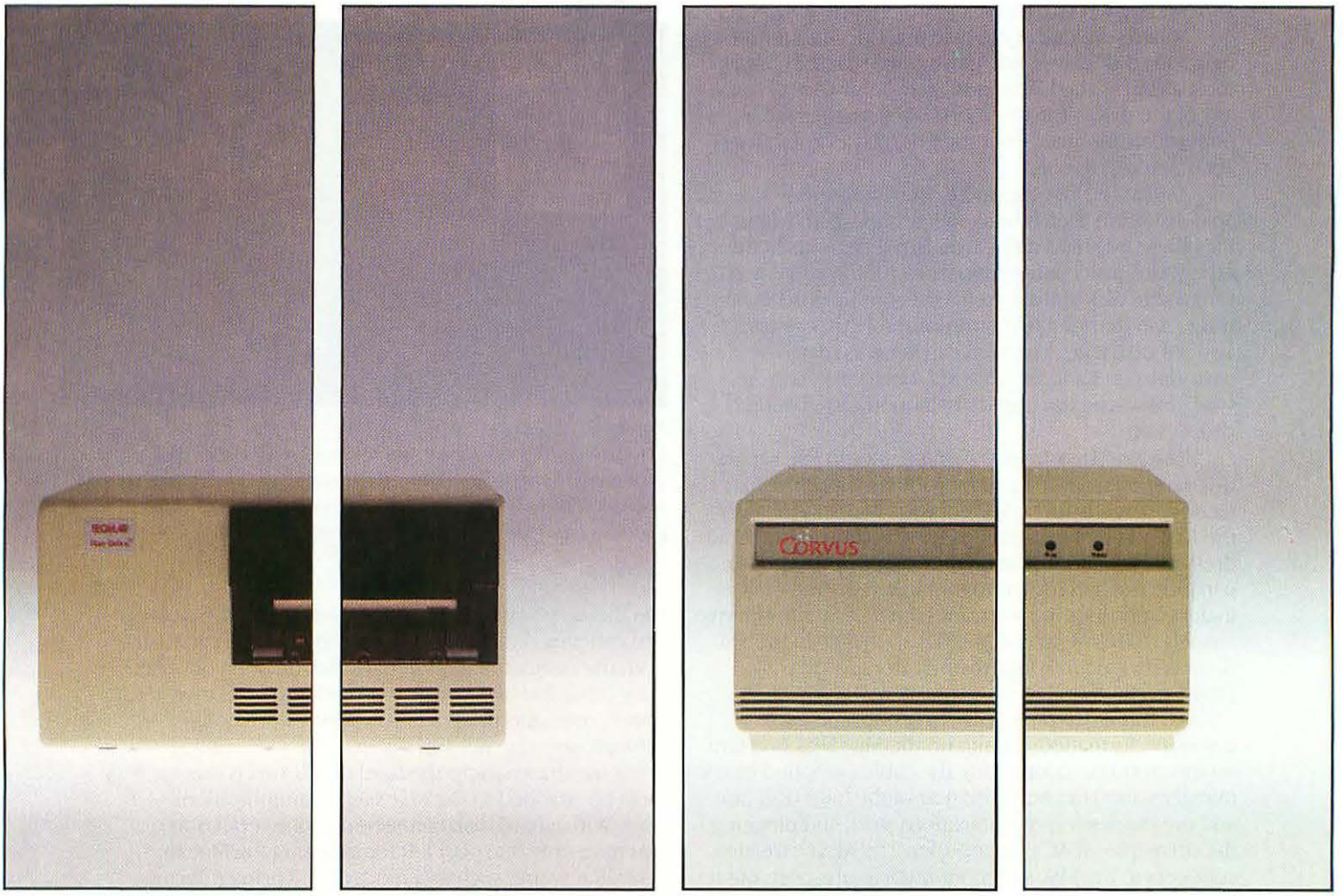
Three hard disk drives available for the Macintosh are the Davong Mac Disk, the Tecmar MacDrive, and the Corvus OmniDrive. Although each of these drives is easy to set up, you may have trouble finding room for one on your desktop. However, the electronic storage space you gain will be worth the physical storage space you lose.

For most people, purchasing a second disk drive solves the storage problems encountered with a single drive (see "Double-Disk Strategies," November). But you may be tempted instead by a high-capacity hard disk whose maximum storage space is measured not in thousands of bytes but in millions–megabytes. Hard disks offer the advantages of speed and vast storage capacity, but they are expensive. In determining how much storage space and speed you need, it's important to understand the powers and limitations of the current state of the art in Macintosh hard disk systems. To show you what to expect, I put three hard disk drives through their paces. These were prerelease versions of the Davong Mac Disk and Corvus OmniDrive, and a production sample of the Tecmar MacDrive removable-cartridge hard disk system.

The Drive's Hard Heart

Hard disks, also called fixed disks or Winchester disks (the Winchester was IBM's first commercial hard disk for mainframe computers), get their name from the actual disks on which computer information is stored. The heart of the drive is a hard metal platter coated with a fine metallic oxide. Unlike the magnetic surface of a floppy disk, the surface of a hard disk never comes in contact with the disk drive's read/write head. The constant, rapid revolution of the disk creates a cushion of air on which the head "floats." A hard disk is so precise an instrument that the intrusion of a single dust particle can prove disastrous. To prevent disasters, most hard disks are sealed against outside impurities. For this precision, however, you can expect to pay at least $2000.

The principal advantage of a hard disk is that it stores more information than a floppy disk. A typical hard disk is capable of storing 10 megabytes–as much as 25 floppy disks. A hard disk might be invaluable, for



example, to an attorney who maintains ongoing correspondences with many clients, law firms, and agencies. If the attorney wants to retrace the history of a correspondence or compare a number of letters, a hard disk can store all the information in one place, and the attorney can simply switch among items without juggling floppy disks.

Other than enormous storage capacity, it is worth asking what you gain from a hard disk drive that you don't get with a second floppy disk drive, which costs one-fourth as much. One of the hard disk drive's advantages over a floppy disk drive is that it transfers information between disk and computer many times faster. Any time you perform operations such as opening, saving, or quitting a program or a document, you have to wait for the Mac to shuttle information between its internal memory and a storage device. With the hard disk spinning at 3600 revolutions per minute (rpm), the magnetic head has access to more information in less time than a floppy disk, which rotates at only 390 to 605 rpm.

The hard disk's speed helps you save time and keep your train of thought while you change between application programs. Say you want to insert several bar graphs from *Microsoft Chart* into a *MacWrite* report for a sales forecast meeting. With a floppy disk, every time you try to cut and paste a graph into the final document, you twiddle your thumbs while you watch the mouse pointer appear as a wristwatch. A hard disk greatly reduces the waiting period.

Sizing Up the Drives

When you look at the Davong, Corvus, and Tecmar hard disk drives, you may notice that they are almost as big as the Macintosh itself. To save desk space, any of the drives can be placed beneath the Mac like a pedestal or mounted on a shelf or the floor if there is adequate ventilation.

Unlike the Davong and Corvus nonremovable disks, the Tecmar system features a removable 5-megabyte (M) hard disk cartridge. Tecmar also offers other hard disk configurations, including a 10M nonremovable disk and a system that combines a 5M cartridge with either a 10M nonremovable disk or a second 5M cartridge drive. You can keep as many cartridges on hand as you need for storage, so you won't fill up the finite space of a nonremovable hard disk system.

The Mac Disk from Davong comes in five capacities, ranging from 10 to 40 megabytes. Since the Mac's Finder currently limits hard disk storage to 16M, only the 10M and 15M systems can be used efficiently. To address this limitation, Davong is designing utilities to partition the hard disk into multiple volumes. Corvus includes partitioning software with its four OmniDrive models (5M, 11M, 16M, and 45M) so that even the 5M drive is divided into four distinct storage areas of 1269K each.

All three drives are easy to set up, and each comes preformatted. Setting up the Mac Disk and OmniDrive requires connecting the cable (supplied by the manufacturer) between the rear of the hard disk unit and the Mac's telecommunications port, and plugging the drive into an AC power outlet. The MacDrive also connects to the Mac's telecommunications port, but it has the AC power receptacle on its rear panel. Since you can plug the Mac into the receptacle, you can turn both the computer and the hard disk drive on or off at once using the one power switch on the MacDrive. This combination also lets you power both units through only one AC wall outlet.

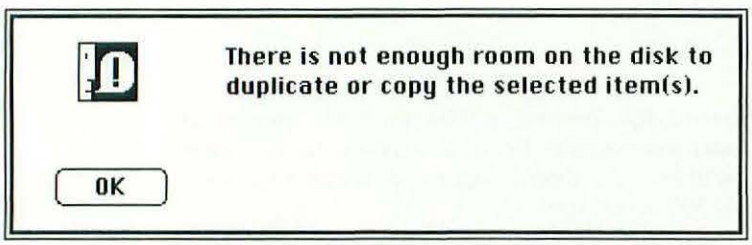


Figure 1

Seeing the "disk almost full" alert box is a good reason to investigate additional disk drive options, including hard disk systems.

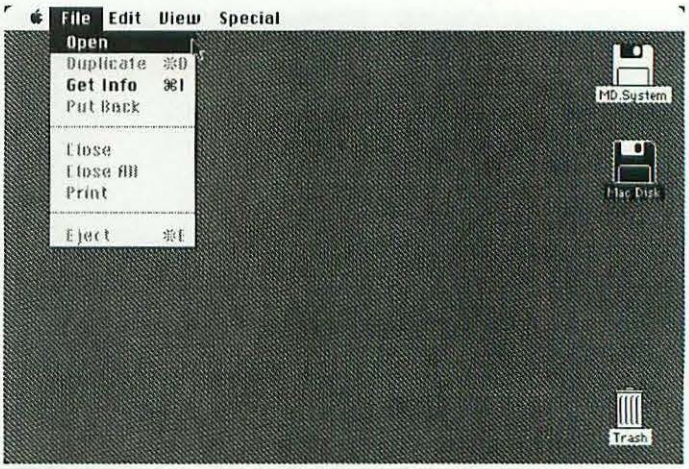


Figure 2

The system disk icon appears on the Mac's screen after you turn on the hard disk and start the Mac with the special system disk. Soon thereafter, the hard disk icon appears. To transfer control of the Finder, you must first open the hard disk icon.

One drawback to the hard disk drives is that each must be attached to the Mac's telecommunications port. With a hard disk connected to one serial port, you have only one port left for attaching the Mac to other hardware, such as a modem or a printer. Tecmar and Davong both plan to include an extra serial port on the rear panels of their hard disk systems. If you plan to buy one of these systems, however, verify that the serial port has been added; otherwise, you have to switch cables manually when you want to change hardware devices.

Starting Up

Although the hard disk drives are easy to set up and don't require software installation, you can't start up the Mac from a hard disk. Every time you want to start the hard disk, you have to start the Mac with a special floppy disk, provided by the manufacturer, that contains a customized System file. If you've already started the Mac with a disk that has a regular System file, you must restart with a customized disk to use the hard disk. The customized System file replaces the Mac's System file, which can't recognize a hard disk drive connected to either of the Mac's serial ports.

After you've started the hard disk and inserted the special system disk, it takes about twice as long for the Mac to get going with a hard disk drive as it takes with the Mac's floppy disk drive. Because you use a hard disk to make your work more productive, it makes

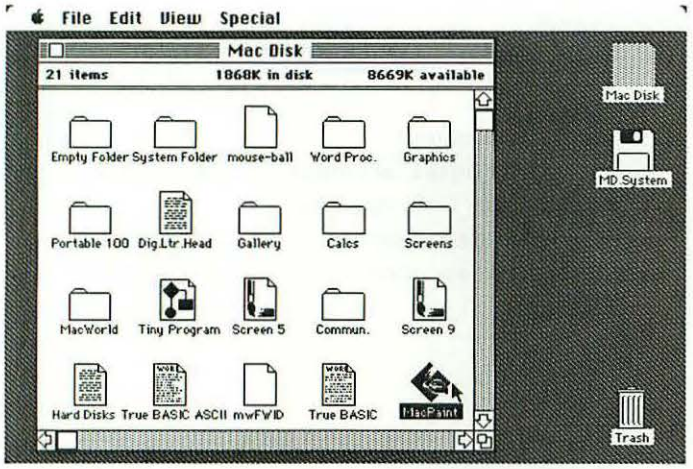


Figure 3

To complete transferring control of the Finder, you must open an application such as MacPaint *from the disk window.*

sense to start the drive in the morning and leave the computer on all day. Once you see the hard disk icon on the screen, you open the icon and then open an application from the hard disk before you can eject the system floppy disk (see Figures 2 and 3). By opening the application, you transfer control of the Finder to the hard disk. At this point, you can eject the system disk and use the Mac's internal drive for transferring programs or documents between the floppy and hard disks (or you can use the floppy disk drive by itself, as if the hard disk weren't there). If you aren't using the floppy disk, it is a good idea to eject it from the drive; otherwise, the Finder will waste time reading the file directory of the internal drive when you quit an application.

Working with the hard disk and internal drive on the desktop is like working with two floppy drives–although one drive is obviously larger. You transfer programs and documents to and from hard disks in the same way that you transfer them between floppy disks–you drag an icon from the source disk to the destination disk. Like an external floppy disk drive, a hard disk drive greatly reduces disk juggling.

The Corvus drive, with its ability to partition the disk space into volumes, differs from the Davong and Tecmar drives because you must go through a program called the *Mount Manager* to select the one or two hard disk volumes that can be active at once. You must remember, however, to have a System file and *Mount Manager* in at least one volume on the desktop. Remembering which volume holds the *Mount Manager* can be confusing until you practice for a while.

Davong and Tecmar recommend different procedures for turning off the Mac and the hard disk drive. For the Davong system, make sure you haven't used the hard disk for at least 10 seconds before you turn the drive off. This gives the disk drive's magnetic head time to set itself in an unused portion of the disk, which helps prevent damage if the unit is handled roughly.

For the Tecmar drive, the documentation advises you to go through the same ejection procedure used for floppy disks when you turn the drive off. Unfortunately, on the system I tested (Tecmar system disk software version 1.00), the Mac usually presented an alert box warning that not enough memory remained to eject the disk (see Figure 4). In practice I was able to turn off the MacDrive and the Mac without losing data. Nevertheless, a cloud of doubt hung over the close of each session.

Although the OmniDrive manual lacks specific instructions for winding up a hard disk work session, the unit seems forgiving. I tried turning it off with volumes and windows open and still did not lose any data.

Hard and Fast

The real test of hard disks is whether they improve your productivity with the Macintosh. Your first impression in working with any of these drives is how much faster a hard disk stores and retrieves information than a floppy disk. If you placed the three hard disks in a race, they'd finish Davong, Corvus, and Tecmar.

I tested opening, saving, quitting, and duplicating *MacPaint* and *MacWrite* documents, and the Davong drive was usually about twice as fast as the Tecmar product and was always at least 25 percent faster. The Corvus drive generally performed in between the other two. Opening *MacPaint* with the Mac Disk took 7.8 seconds compared to 11.4 seconds for the OmniDrive, 13.5 seconds for the MacDrive, and 21.9 seconds for the Mac's internal floppy disk drive. The Tecmar hard disk drive was approximately twice as fast at opening and saving files as the Mac's internal disk drive, but about 20 percent slower than a floppy disk drive when quitting *MacWrite* or *MacPaint*. Quitting *MacWrite* took the Davong 8.9 seconds compared to 19.3 seconds for the Tecmar, 14.8 seconds for the floppy disk, and 10.1 seconds for the Corvus drive.



Figure 4

Although the Tecmar manual urges you to "eject" the hard disk at the end of a session as you would a floppy disk, an alert box warns that it cannot be done because of memory limitations. I never lost data, however, by ignoring this alert box and turning off the MacDrive.

Finding Room

After increased speed, you're most likely to notice that the storage space on a hard disk seems enormous. Even after transferring all your programs and documents to the hard disk, you'll probably find many thousands of kilobytes still remaining for your work. Having all this space, of course, essentially eliminates the possibility of getting the "disk almost full" alert box.

The amount of free storage space, however, is not as large as is specified in the disk window. Due primarily to limitations in the file management capabilities of Finder version 1.1, the Mac can track only about 100 to 150 programs or documents (only about a month's output of five letters each business day) on a hard or floppy disk directory. To help mask this limitation, both the Davong and Tecmar systems assign disk space in large chunks, even for the smallest files. If you store a 100-byte file on the Tecmar cartridge, for example, a glance at the Get Info dialog box reveals that this tiny file accounts for 10K of disk space. The same file on the Davong hard disk takes up 20K (see Figure 5). Therefore, the 10M hard disk may not store a full 10 megabytes of programs and documents if your files are not in the precise size increments. You're likely to run out of directory space before storage space until Apple updates the Finder again to control a greater number of files on a disk.

Because the Corvus hard disk drive lets you partition space into smaller units than the other drives, it assigns disk space in smaller, 4K chunks. Partitioning in this way allows you to store more data and a larger number of files on the entire disk. I encountered some difficulty, however, in copying several dozen documents to a Corvus volume. The volume wouldn't accept more than 749K, and each new document I copied or created erased a document previously stored on the volume.

One of the hazards of computing with a hard disk is that with so much storage space your Mac desktop can become disordered. You should establish a work plan that includes placing associated programs and documents in readily identifiable folders. With the Mac's current Finder, however, the more you organize your documents into folders, the fewer actual documents you can store on a hard disk–as few as 90. This situation creates a paradox: the more documents you have, the greater the need for folder organization; yet the more folders you have, the fewer documents the directory can hold. If you want to conserve folders, you can isolate key application programs for ready identification by dragging them outside the disk window (see Figure 6).

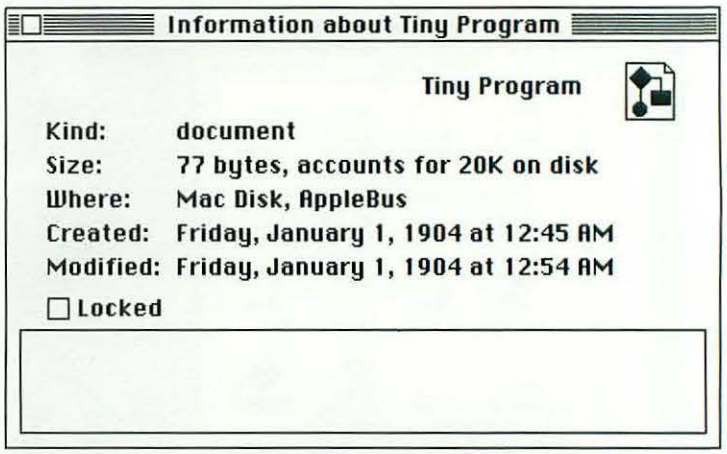


Figure 5

The Get Info dialog box shows that the hard disk assigns unnecessarily large portions of memory to each file, regardless of the actual amount of data being stored. This example shows that the Mac Disk apportions 20 kilobytes of storage for a file only 77 bytes long. The Tecmar MacDrive assigns 10K of disk space, and the Corvus OmniDrive uses 4K. In contrast, the file takes up only 1K on a floppy disk.

When file directories reach capacity, all three hard disk systems seem to strain the 128K Mac's memory. Although this imposition on memory does not affect the maximum size of a *MacWrite* document, the Clipboard area of memory appears to be severely restricted. In the tests I ran, cutting and copying operations were limited to blocks no larger than two *MacWrite* pages. When I tried these operations with larger blocks, I got an alert box indicating inadequate memory.

The "out of memory" alert box also appears when you try to use the Font Mover program to add fonts to the hard disk System file (see Figure 7). The appearance of the alert box makes it impossible to use the Font Mover with any of these hard disks. If you want to change any fonts stored on the hard disk, you must change the fonts on the hard disk's special system floppy disk. You can then start up the hard disk and copy the System file from the system disk to the hard disk.

The Perils of Copy Protection

Copy-protected programs pose serious problems for hard disk owners. Depending on the software manufacturer's policy, copy-protected programs may not be transferable to a hard disk. Other programs may require you to load floppy disks before you can use them.

One copy-protected program, *Microsoft Multiplan* (version 1.02), presents a problem for the Tecmar cartridge disk. When you make a working copy of *Multiplan* on a floppy disk and try to start the program from that disk, the working copy is ejected. A dialog box then appears asking you to insert the original

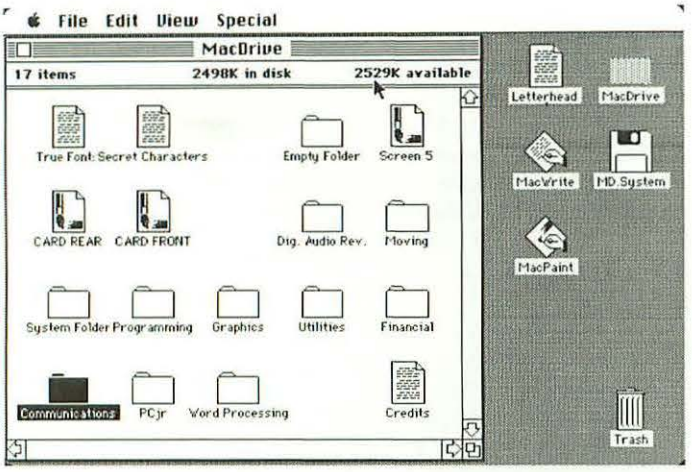


Figure 6

Hard disk desktops look like floppy disk desktops except for the huge storage space on the disk. This MacDrive sample desktop shows that 2529K of storage capacity remains available even though 2498K has already been used. Notice that many documents have been organized into folders. Also, two applications and a letterhead document have been dragged out of the window next to the disk icons for quick identification and opening.

master disk to verify that you have the authorized copy as well. Unfortunately, when you copy *Multiplan* to the MacDrive and try to start the program from the copy, the system software performs the equivalent of ejecting the hard disk (although no physical ejection takes place) and asks for the *Multiplan* Master. At this point, however, the computer is frozen. Inserting the *Multiplan* Master into the Mac's internal drive does nothing, and there is no way to cancel the dialog box. Until a new version of *Multiplan* becomes available, you can't use the program with the Tecmar drive.

Microsoft product developers claim that they have begun adusting their software so that the Tecmar hard disk ejects floppy disks in the internal drive. If *Multiplan* is revised again, it should also include the Tecmar adjustment. The Davong system correctly ejects the floppy disk in the internal drive and asks that the *Multiplan* Master be inserted there.

The Corvus documentation advises you not to attempt to copy *Multiplan* to the OmniDrive (it behaves just like the Tecmar drive). Moreover, the manual recommends that you restart the Mac and hard disk after using *Multiplan*. Failure to do so causes the menu and menu bar font to change from Chicago to Monaco. The necessity of restarting the Mac is a dilemma if you plan to transfer spreadsheet selections to a *MacWrite* document, because the Clipboard is not carried over to *MacWrite*.

Hard Choices

A hard disk drive can improve your productivity by combining the advantages of large storage capacity with speed in moving between several applications and documents. But if your work doesn't regularly require shifting among applications or documents, an external floppy disk drive should meet your needs at considerably less expense. When you add a hard disk (at $2000 and up) to the $2195 Mac, you enter the price range of the Lisa 2/5 (which includes an external 5M hard disk) and the Lisa 2/10 (which includes an internal 10M hard disk), both of which run not only Mac software but also a variety of other sophisticated programs. In this price range, unless you need the transportability of the Mac, your computing needs might be served more economically by the Lisa.

If you decide to add a hard disk drive to your Macintosh, your choice among the three drives depends on whether you most highly value speed, file capacity, or unlimited expansion. For speed, the Davong hard disk is currently the clear winner, because it most closely approximates the speed Mac owners might expect from a state-of-the-art personal computer. However, speed deficiencies in hard disks almost always result from the accompanying software, not the hardware. Since Tecmar plans to release upgraded software in the near future, the speed of the Tecmar drive may eventually equal that of the Davong drive.

The Corvus software best circumvents the limitations in directory space imposed by the Finder. Dividing the OmniDrive into volumes, as the software does, also helps you organize your storage.

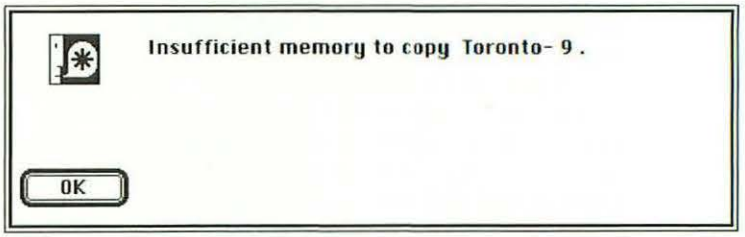


Figure 7

Whenever you attempt to add files using the Font Mover with a hard disk drive, you receive an alert box informing you that there is insufficient memory for the operation.

Although the 10M Davong hard disk offers twice as much storage capacity when you first purchase the drive, the Tecmar drive is ultimately the winner in the arena of storage expansion, because you can always add extra 5M cartridges for about $125 each. Having both the Mac and the hard disk operate from one power switch and one outlet is another convenient feature of the Tecmar drive.

One quality of the Tecmar drive proved annoying during the testing. When you use the MacDrive, the horizontal movement of the mouse slows substantially. Instead of swinging the pointer across an entire *MacWrite* or *MacPaint* window with one flick of the wrist, you have to use a more deliberate action–and larger physical desk space–to accomplish the same move. (Tecmar says that version 1.01 of the MacDrive software has corrected this problem.)

Your choice among the three drives depends on whether you most highly value speed, file capacity, or unlimited expansion.

The Davong software has a desktop quirk of its own–a desktop pattern made up of diagonal lines. Even if you reset the pattern through the Control Panel desk accessory, the diagonal lines reappear the next time you start up the hard disk.

You should regularly back up your hard disk documents onto floppy disks. Davong and Corvus both plan to offer a program that backs up files onto floppy disks and restores documents to the hard disk in the event of hard disk failure. (These programs were unavailable for testing with the prerelease versions of the Mac Disk and the OmniDrive.) I know of no such software for the MacDrive, so you'll have to keep a close eye on your backup procedures if you own one.

All in all, the first marriage of the Macintosh to a hard disk is not without problems. It's as if the two partners haven't spent enough time together to learn their respective idiosyncracies. Eventually, the Mac Finder will probably allow more files to be addressed and more documents to be stored on both drives. And the 512K Mac should clear up the limited-memory problems noted. As Apple and hard disk makers learn more about the way the Mac works with a hard disk, the two parties will gradually solve their problems and make the marriage work. □

Danny Goodman is a Contributing Editor of Macworld. *He is the author of* SuperMac, *forthcoming from Simon & Schuster, as well as several other personal computing books. He also writes articles on computers and electronics for general-interest magazines.*

Mac Disk
Davong Systems, Inc.
217 Humboldt Ct.
Sunnyvale, CA 94089
408/734-4900
List price: 10M system $2395, 15M system $2795

MacDrive
Tecmar Inc.
6225 Cochran Rd.
Solon, OH 44139-3377
216/349-0600
List price: 5M removable cartridge system or 10M nonremovable cartridge system $1995, combination system $3290

OmniDrive
Corvus Systems, Inc.
2100 Corvus Dr.
San Jose, CA 95124
408/559-7000
List price: 5M $1995, 11M $2495, 16M $3195, 45M $4995

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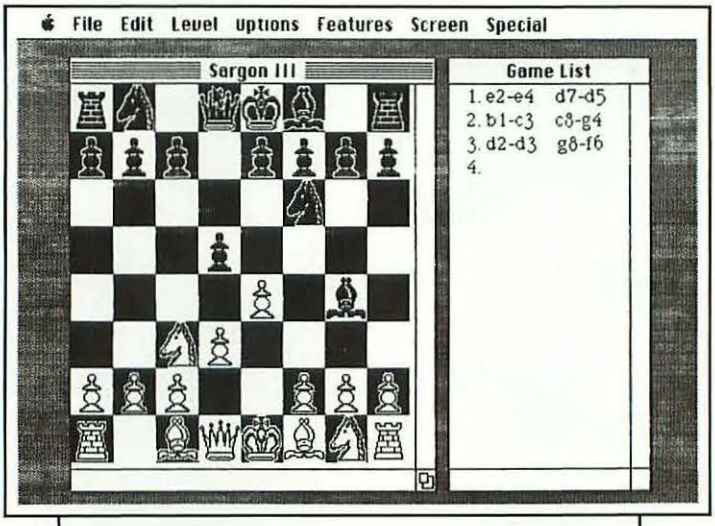
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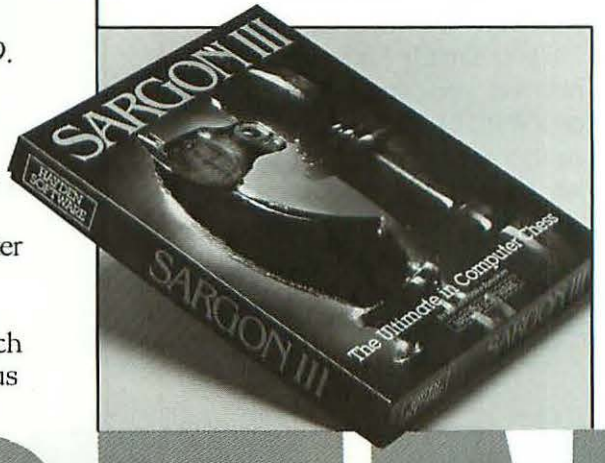
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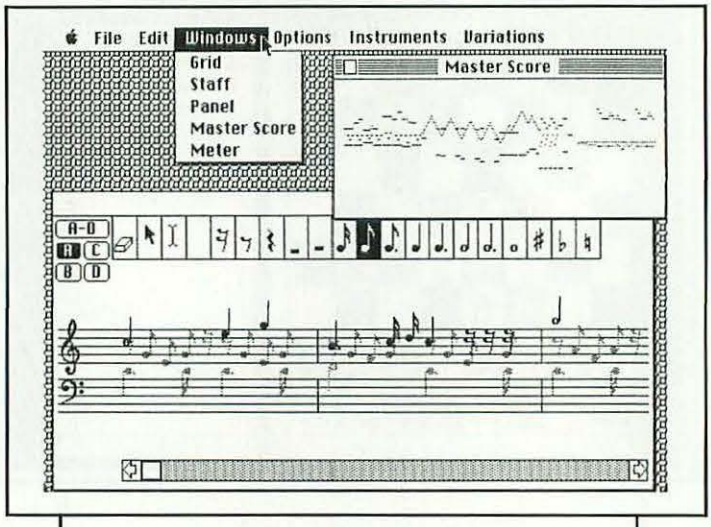
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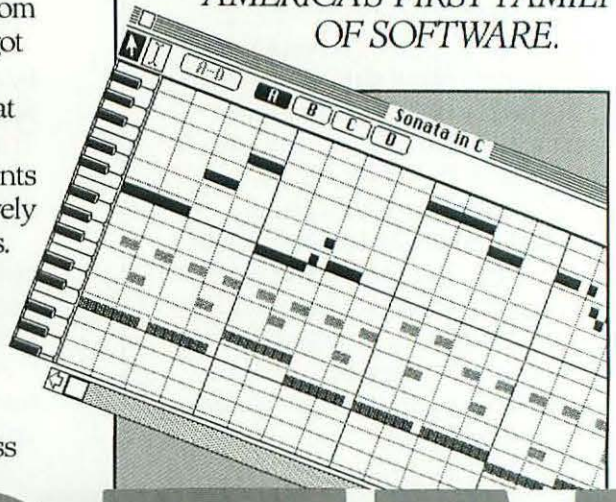
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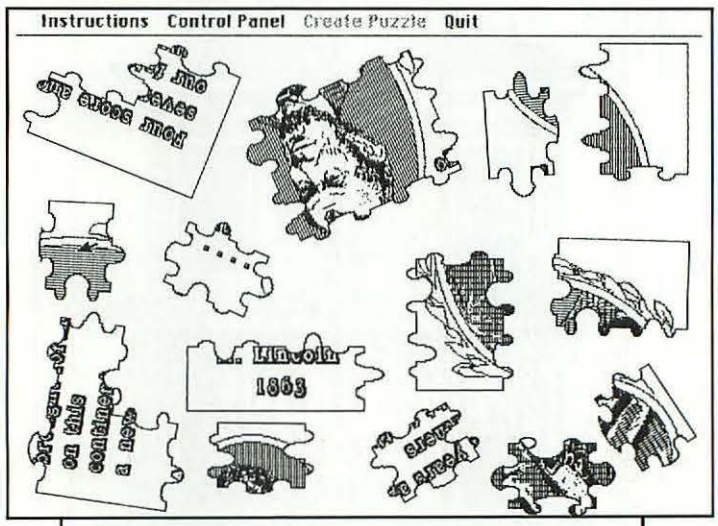
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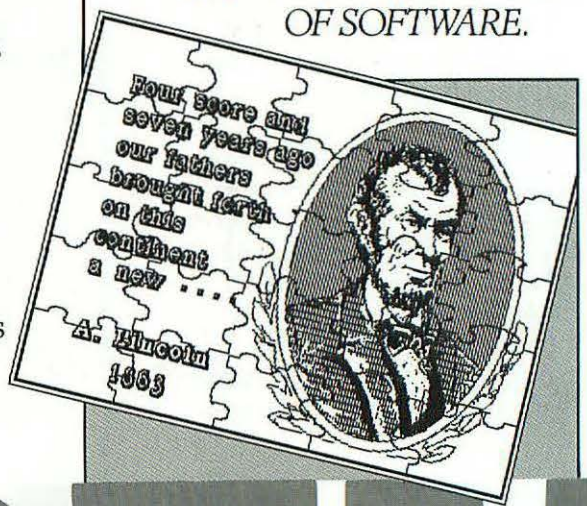
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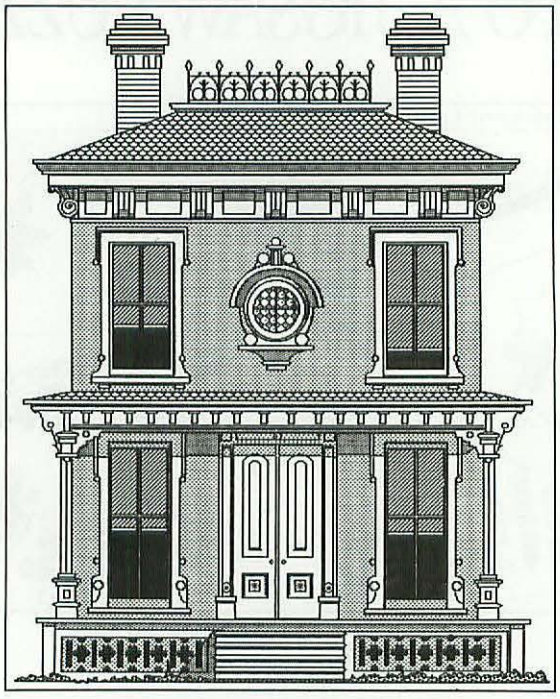
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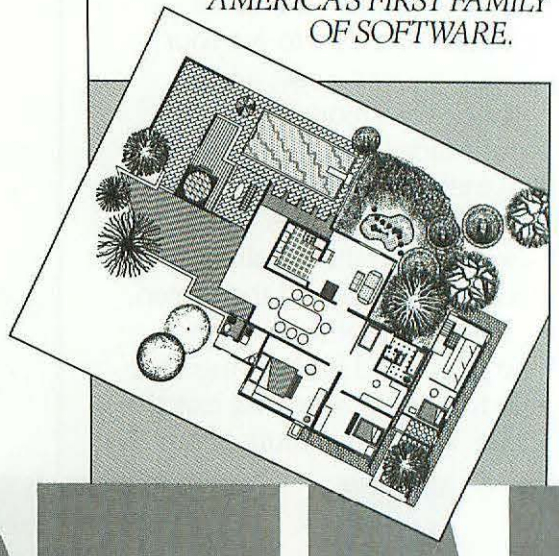
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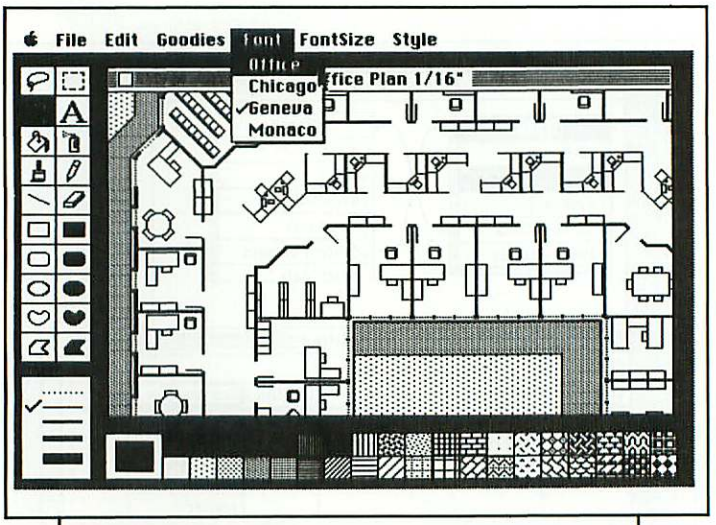
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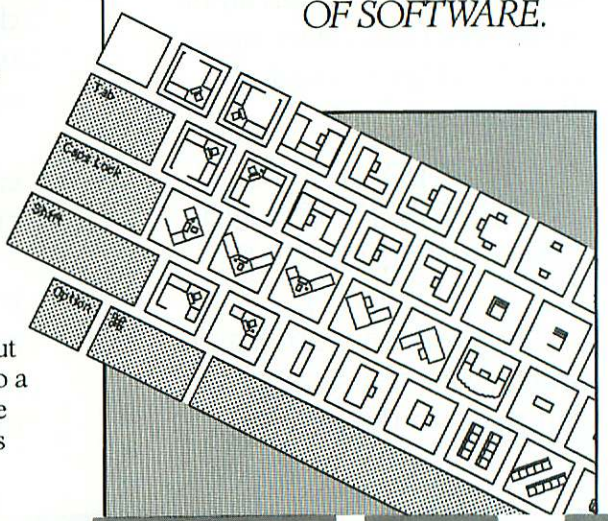
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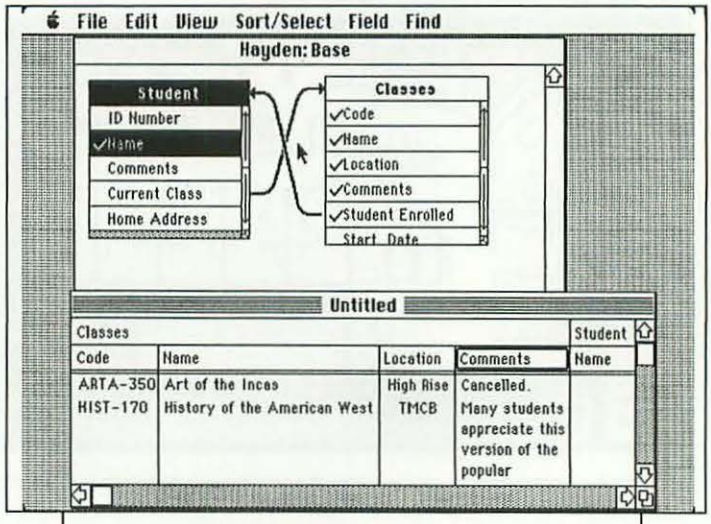
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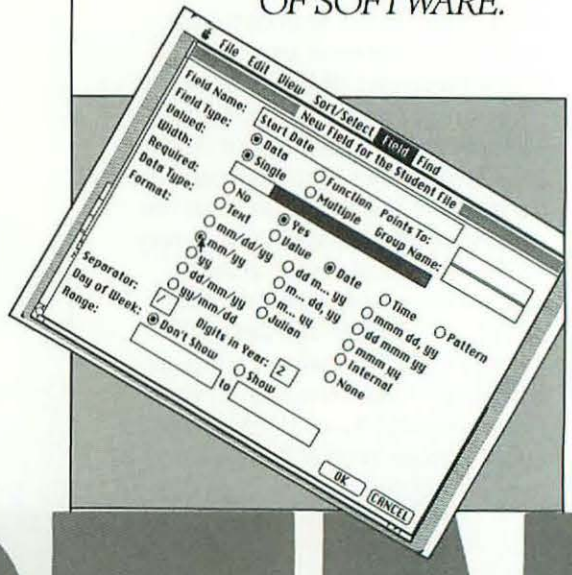
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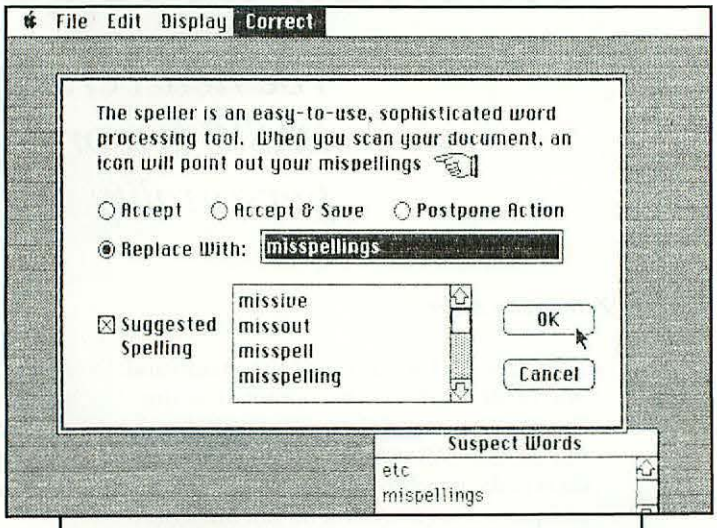
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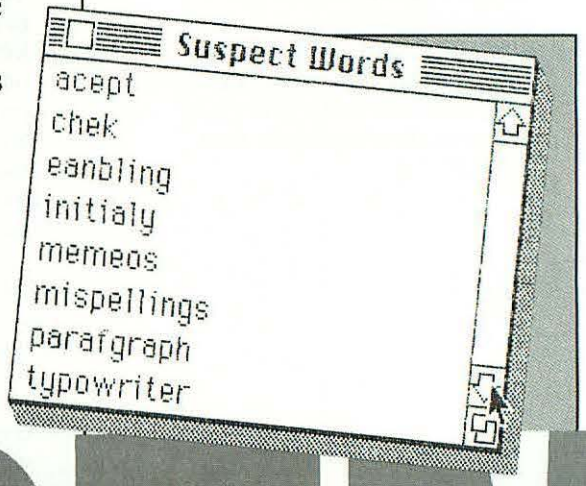
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Microsoft BASIC Comes of Age

The new version 2.0 of Microsoft BASIC is worthy of the Mac's personality

Sharon Zardetto Aker

MBASIC 2.0 gives you much more programming power and flexibility than MBASIC 1.0. The language has both an Engineering version, which excels in rapid calculation, and a Financial version that performs decimal-based calculations with great precision. The debugging capabilities include an instant syntax checker—keywords appear in boldface as you type in your programs. Unlike the line numbers in most other dialects of BASIC, those in MBASIC 2.0 are optional. And you can access many of the ROM routines in the Mac's 64K treasure chest with calls from MBASIC 2.0.

Even though I am a BASIC aficionado and Microsoft fan, I was disappointed by the original version of Microsoft BASIC for the Macintosh (MBASIC 1.0). The language didn't take much advantage of the Mac's unique work environment. But Microsoft has redeemed itself in my eyes with its updated MBASIC 2.0. And don't let the Mac-Pascal snobs get to you. MBASIC for the Macintosh lets you create programs ranging from arcade-style games (see "The Voyage of Sonar Sub" in this issue) to applications for business, science, and education.

Although MBASIC 1.0 stands on its own as a functional, easy-to-use language, to fully appreciate Microsoft's upgrading job you should know a few facts about the original release. Creating a Macintosh-like program was impossible with MBASIC 1.0. You couldn't create pull-down menus or multiple windows, nor were any commands provided to let you use the Mac's sound capabilities.

Another major shortcoming of MBASIC 1.0 was the way you had to enter program lines. You typed program statements in the Command window. When you pressed Enter or Return, the statements appeared in the List window. To edit a line you had to move it back to the Command window, either by typing in an Edit command or by clicking on the Command window. The entire editing procedure was decidedly awkward.

MBASIC 2.0 has overcome most of the shortcomings of the original release. It lets you create a Macintosh environment from within a Macintosh environment. You can put control buttons in windows and invent menus for a menu bar, coax out some sound, and dive into the Mac's graphics capabilities. MBASIC 2.0 also allows you to enter commands in the List window and edit lines as you would edit a *MacWrite* document.

MBASIC Revisited

As soon as you insert your MBASIC 2.0 disk, the improvements are apparent. The disk includes two MBASIC programs: a decimal, or "Financial," version and a binary, or "Engineering," version (see Figure 1). The Financial version does decimal-based calculations with great accuracy. Programs written in the Financial version, however, usually run more slowly than binary-based programs because the computer "thinks" in binary numbers while you enter decimal numbers. Programs written in the Engineering version are accurate enough for most purposes and run faster than those written in the Financial version. While you should probably write a mortgage calculation program in Financial MBASIC, Engineering MBASIC is appropriate when quick calculation is important—in a game, for example.

Programs written in one version can be run in the other version, as long as they have been saved to the disk in the proper format. Although data files created in one version are not immediately compatible with the other, the language provides conversion commands to make the files readable between versions.

For an example of an arcade-style game program created with MBASIC 2.0, see "The Voyage of Sonar Sub" in this issue.

Another improvement is that the greater variety of menu options gives you more control over your programs. You can display up to four windows in MBASIC 2.0: the Output window, two List windows (in case you want to view two portions of your program simultaneously), and a Command window for immediate commands (see Figure 2).

The Command window is a necessity. In most versions of BASIC, the difference between an immediate command (which is executed right away) and a delayed command (which is executed when the entire program is run) is the line number. Since MBASIC doesn't need line numbers, the only way to differentiate between the two command types is by which window is being used.

Lines and Labels

One of the new features of MBASIC 2.0 is that line numbers are now optional, rather than required. The concept of "optional line numbers" is somewhat misleading. Line numbers are optional in the sense that you are not forced to use them. If you do use them, however, they don't function like "normal" line numbers.

In MBASIC 1.0, typing in the commands

10 PRINT "one"
30 PRINT "two"
20 PRINT "three"

results in the output

one
three
two.

The program commands are executed in line number order. In fact, regardless of the order in which you enter commands, when you list your program the commands appear in numerical order.

In MBASIC 2.0, program commands stay in the order in which you type them and are executed in the order in which they appear in the List window. Commands are not executed in numerical order unless you have arranged them numerically. Line numbers serve only as reference points for controlling the program's flow. You can include a command, such as GOTO 20, and the program will jump to the command with that line number.

One handy addition to MBASIC is labeling. Labels are similar to line numbers and act as reference points that make the program easier to read and allow you to redirect program flow (like a GOSUB state-

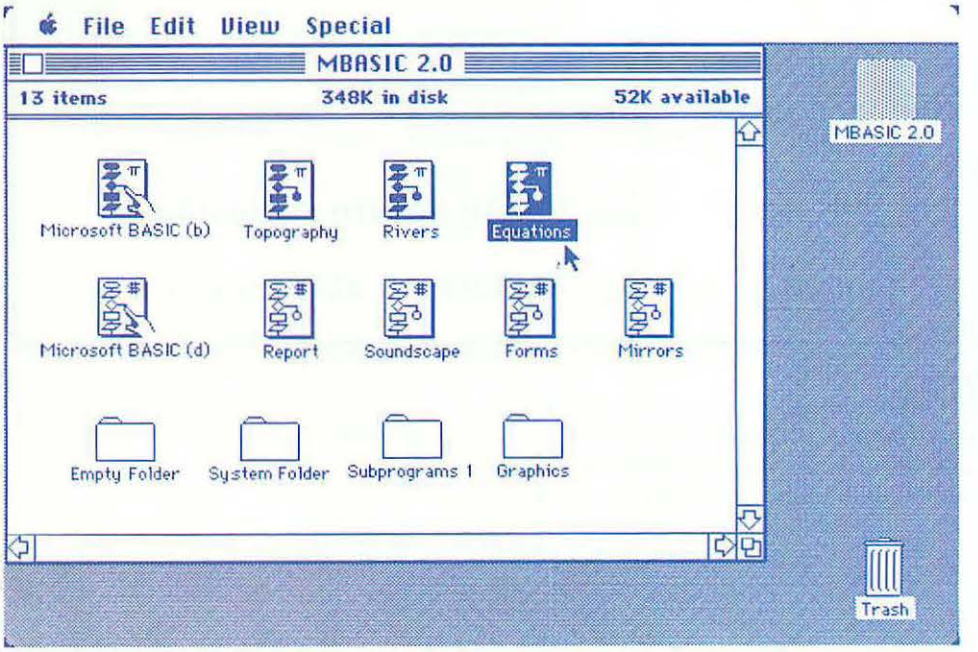


Figure 1
Two versions of BASIC are provided on the MBASIC disk. The Financial version offers accuracy for decimal-based calculations, but it runs programs more slowly than the Engineering version. The program symbol (\$ for Financial, π for Engineering) is included on each program icon, indicating the version it was created with.

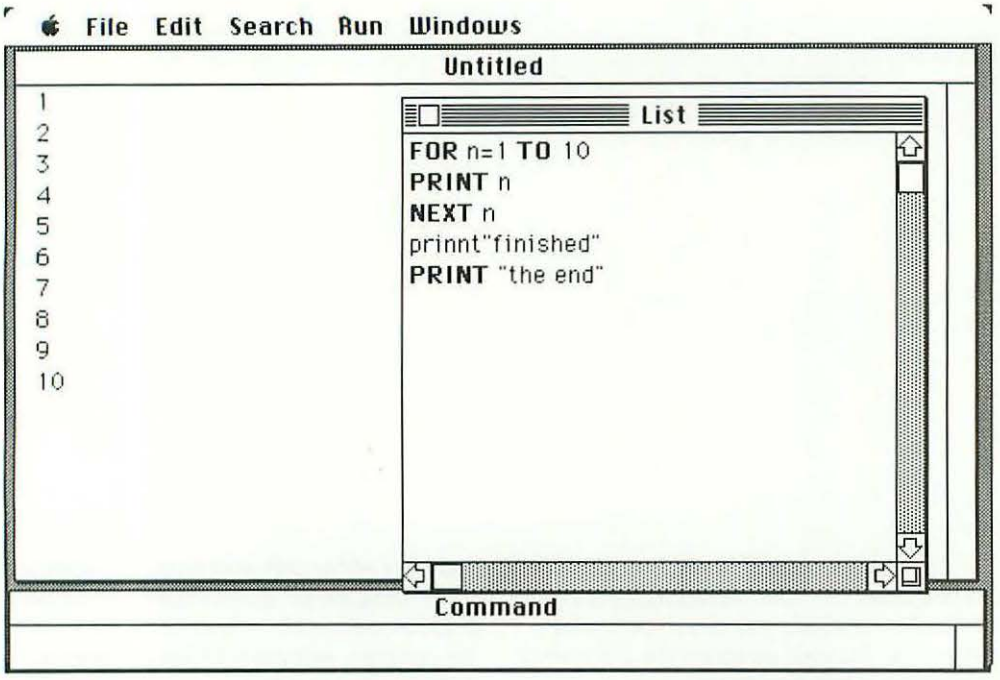


Figure 2

MBASIC has three start-up windows. A fourth window (a second List window) lets you view two parts of a program simultaneously. Notice how the keywords appear in boldface type in the List window. One PRINT command is misspelled, so it doesn't register as a keyword. The boldface feature serves as an instant syntax checker.

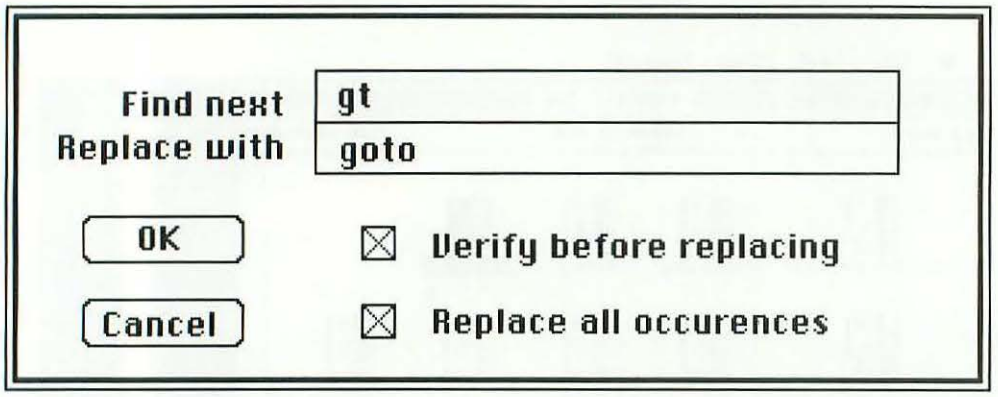


Figure 3

With MBASIC's Replace function, you can alter the program listing. For instance, you can change all the occurrences of a certain label or variable name. You can also use the function to edit a program that has been written with shorthand or abbreviated labels.

ment). Labels can consist of from 1 to 40 letters, periods, or digits. A program line can have a label, a line number, or neither one. In addition, a label can be put on a line of its own.

Since MBASIC 2.0 is designed without the line-numbering scheme used by most other BASICs, a few other features are added to make editing and changing parts of a program easier. A Find command is included, so you don't have to scroll through a lengthy program to locate a particular line or command. In addition, Find Label and Find the Cursor have been added to the Search menu. The Replace feature lets you type in your own shorthand. You can enter often-used commands such as INPUT, GOTO, or RANDOMIZE with abbreviations such as IP, GT, or RG. Later, you can use Replace to change them to the full form (see Figure 3).

Of course, because the new MBASIC eliminates line numbers, commands related to numbering are unnecessary. Old BASIC hands may notice that the Auto and Renum commands are missing, but since you seldom number all of a program's lines in MBASIC 2.0, the automatic line-numbering command isn't needed. And if lines aren't numbered, you don't need Renum to renumber them.

A Bold Addition

Some of the less obvious enhancements to the language may not seem significant. One nifty little feature in MBASIC 2.0 is the way listings are formatted on screen. As soon as you press Return or Enter after typing in a program line, the keywords in that line appear in boldface type. This feature serves as an instant syntax checker. Since incorrectly spelled keywords will not be boldfaced, you will probably notice errors immediately.

Two other minor but useful enhancements are the functioning Tab key and the wealth of ⌘-key options. The Tab key feature lets you indent loops or other sections of the program for easy reading while you work in the List window. And the ⌘-key options serve as convenient alternatives to mouse-based menu selections.

Creating a Macintosh Screen

Designing a Macintosh-style user interface with a menu bar, pull-down menus, windows, and buttons is a breeze with MBASIC. By comparing the listing in the figure "Trivial Menus" with the screen shown, you can probably decipher most of the commands yourself.

The sample program is static–it simply sets up the screen. You can pull down a menu, and, if you click on an active button, the menu is highlighted; nothing else happens. Other commands let you know which menu you pulled down or which button you pushed. But these features really deserve an article all to themselves.

Here are descriptions of the command statements used to create a Mac-style program shell.

• MENU *menu id#, item id#, state, title*
The MENU statement gives you control over the design of the menu bar and pull-down menus. The *menu id#* is a value from 1 to 10 that defines the positions of items on the menu bar. (The Apple menu is at the zero position.) The *item id#* refers to a specific item in a menu; the value can range from 0 to 20, with the zero position being the menu name that appears on the menu bar.

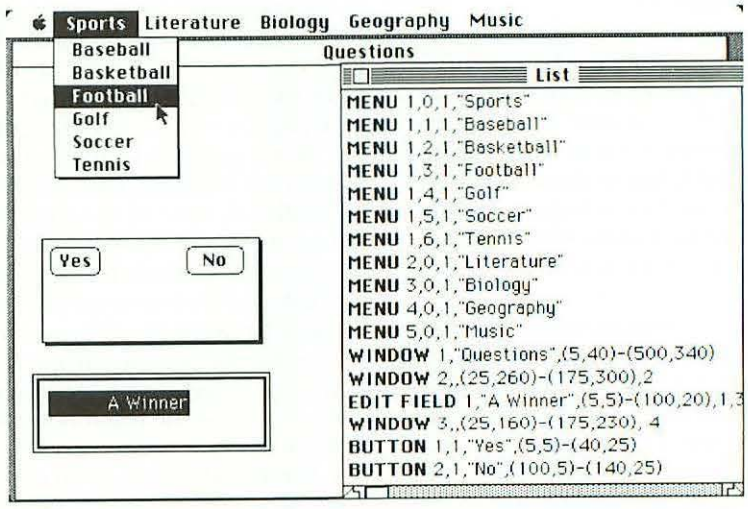
The *state* represents one of three conditions: inactive (dimmed, indicating unavailable for selection), active, or active with a check mark next to it. The *title* variable is the name you have chosen for the menu or its options.

• WINDOW *id#, title, coordinates, type*
The WINDOW statement lets you create multiple output windows in your programs. The *id#* designates which of four possible windows is being created. The *title* is the name that appears in the title bar of a document window. The *coordinates* describe the size and placement of a window by giving the pixel coordinates of its upper-left and lower-right corners. The *type* defines the kind of window you create from among the four choices: document style or one of the three styles of dialog boxes.

• EDIT FIELD *field id#, default, coordinates, type, justify*
The edit field is the rectangle within a window in which you can type information. Each edit field has its own *id#* and is automatically placed in the currently active window. The *default* is the highlighted (selected) text that appears within an edit field until you type something to replace it.

The *coordinates* define the size of the edit field relative to the window it is in, rather than to the entire screen. The *type* is a number from 1 to 4 that describes whether a frame exists around the edit field and whether a Return key will register in the field. The *justify* argument is 1, 2, or 3, for left, centered, or right, respectively.

• BUTTON *button id#, title, state, coordinates, type*
The BUTTON statement places a button within the active window. The *id#* serves as a unique reference, and the *title* appears in a push button beside the check box or radio button. The *state* can be inactive, active, or active and already selected as the default button. The *coordinates,* given relative to the window, define the size of the push button or the area of button and text for the other styles of buttons. The *type* can be one of three styles: a regular push button, a check box, or a radio button.



Trivial Menus
A menu bar and three windows were created by the program in the List window. The MENU RESET command restores the MBASIC menu bar.

Traces

MBASIC, Macintosh BASIC (the BASIC under development at Apple), and Macintosh Pascal all have special program-tracing functions. Whether this common feature is due to the special Macintosh environment, one-upmanship, or both (my vote), I certainly appreciate it.

The MBASIC Trace feature, available both as a BASIC command and as a menu selection, slows down program execution and frames the currently executing command in the List window. This design is vastly superior to that of most BASIC trace functions. These usually spit out the line number of the current program line, which obscures part of the output screen. In addition, you can use the MBASIC 2.0 Step option, which runs the program one command at a time, pausing until you press a key.

Interactive Features

Who says there are no thrills in BASIC programming? Wait until you design your first custom menu and see your own menu bar displayed across the top of the screen. With the WINDOW command, you can display up to four windows on the screen at once. Windows are available in four varieties. The first is the document window, complete with size box and title bar. The other three are types of dialog boxes: single border, double border, and shadow border (see Figure 4).

You can use the BUTTON command to put an unlimited number of buttons in a window, with text within or beside them. The button type can also be specified. You can use a push button to OK or cancel an operation, a check box to show that a certain parameter has been chosen, or a radio button, the circular kind in which a black dot appears when you click on it (see Figure 5).

The MENU command lets you set up your own menu bar. You can designate at what position on the bar the menu will appear, what items will be on each menu, and when choices will appear dimmed, indicating that they cannot be selected (see "Creating a Macintosh Screen"). Other commands set up the Mac's interactive screen. EDIT FIELD, for instance, lets you put text in a dialog box.

Event-trapping constructs are also provided. These alert the computer to specific user input, such as when you select a menu option or move the mouse. When the program detects an action, it responds by branching to the appropriate event-handling subroutine. The MENU ON statement, for instance, lets the computer detect a menu selection. A reversal of the keywords MENU ON (to ON MENU) followed by the appropriate instruction tells the program what to do if the event is trapped.

Other event trappers include MOUSE ON, TIMER ON, BREAK ON, and DIALOG ON. MOUSE ON alerts the computer to a mouse click, and TIMER ON allows the computer to carry out an operation after a specified number of seconds has passed. BREAK ON intercepts your efforts to halt the running of the program. Finally, DIALOG ON keeps track of the way you react to edit fields and buttons in a dialog box. Of course, MBASIC also has functions that allow you to find out which window was activated, which button was selected, how far the mouse was moved, and so on.

MBASIC Sound

MBASIC 2.0 contains only two sound-related commands: SOUND and WAVE. I was disappointed to find only two sound commands; these just don't make the most of the Mac's sound capabilities.

The SOUND command produces music and other sounds through the Mac's speaker. You can specify the pitch, duration, and volume of a note, as well as which of the computer's four voices (sound channels) will play. The duration can be from 0 to 77, in which 18.2 represents 1 second. Unfortunately, the pitch has to be defined as a frequency (cycles per second).

If you program by musical notation rather than in frequencies, you have to manually calculate all the notes. For instance, if concert A is 440 cycles per second, the octave above is twice that many, the half tones between are one-twelfth the distance between the octave notes, and the pattern for the notes in a major scale is . . . wait, don't forget that the frequency increments between the half tones will change with each octave. . . .

You would be spared all this calculation if MBASIC 2.0 used the PLAY statement contained in many BASIC dialects. The PLAY statement enables you to compose your tune using the letter names of the notes.

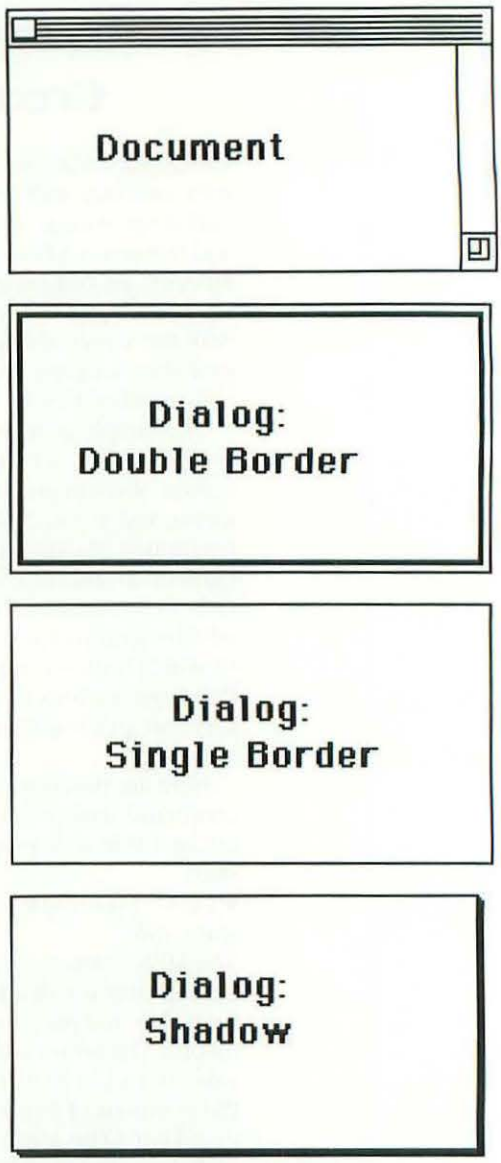


Figure 4
You have access to four types of windows with the MBASIC WINDOW command. The document window has a title bar and a size box. With the new SCROLL command, you can scroll through the contents of a window you create.

Figure 5
The BUTTON command allows you to design three types of buttons and specify the text that should be printed within or alongside them. You can also designate a button to be already selected, acting as the default choice in the dialog box.



The WAVE command lets you control the kinds of sound you can produce by defining the shape of a sound wave. While you can use the SIN function as the argument to produce a basic sine wave for a sound channel, other waves are defined by 255-element arrays whose contents, if graphed, describe the wave shape.

As a sound wave alters from the smooth curves of a sine wave, its timbre (or quality) changes. The curved sine wave produces a clear, flutelike sound. As the wave shape changes to the jagged peaks of a triangle wave, the sound becomes nasal, like an oboe. A square wave produces a hollow, woody sound.

It would be convenient if you could specify more wave shapes by name. As it stands, WAVE is a powerful but complicated feature. I'd gladly trade some of its power for a little more ease of use.

Subprograms

Subprograms are one of the advanced features added to MBASIC 2.0. A subprogram, though similar to a subroutine, is different in a few important respects. A subroutine is a group of commands that is executed more than once during a program. For example, you might need to erase the right half of the screen several times while the program runs. Instead of repeating the commands each time they are needed, you can type them in once and label the subroutine appropriately.

If you label the subroutine "Wipe," for example, a simple "GOSUB Wipe" command appearing at any point in the program makes the computer jump to that subroutine. When the RETURN command at the end of the subroutine is encountered, the program picks up where it left off.

While subroutines are an integral part of an entire program, a subprogram is a separate program that can be called within a program. One advantage of a subprogram is that it cannot be executed accidentally. A program can flow right into a subroutine if you don't redirect it in time; the end result is that the program stops running when it encounters the RETURN that signals the end of the subroutine. A subprogram begins with a SUB statement and ends with an END SUB statement; it is executed only when you specifically call it.

Subprograms use variables that are distinct from the main program even when the variable names are identical. The values of the variables can be passed back and forth between the main program and the subprograms. However, you use a specific command to swap variables so they can't be swapped by accident. This "local" variable structure means you can create a collection of subprograms for operations you use frequently. When you merge the subprograms into a main program, you don't have to worry about adjusting the variable names, as you do with merged subroutines.

Numbers and Strings

While I enjoy calling ROM routines, playing with graphics, and designing menus, I tend to ignore the more common BASIC functions. But MBASIC 2.0 is no weakling when it comes to slinging strings and crunching numbers. In BASIC, a number takes the form of a constant that is either positive or negative. A string is a sequence of alphanumeric characters that appears in a program between quotation marks. Examples are "hello", "this is a string", and "so..!@# is this".

All the dialects of Microsoft BASIC are rich in string functions, and the Macintosh version is no exception. Only one new string function, UCASE$, has been added to version 2.0. However, this repertoire of functions is adequate because it includes SPACE$ and STRING$ (the dollar sign stands for *string* in BASIC).

SPACE$ is used to create a string containing a specified number of spaces. SPACE$(10) is an example. This function is useful for blanking out sections of the screen display. STRING$, which creates a string of specified length of any one character (say, 20 asterisks), can come in handy for a variety of screen-formatting jobs.

The new string function, UCASE$, changes all the letters in a string to uppercase. Because MBASIC sorts characters according to ASCII character numbers, and capital letters come before lowercase letters in the ASCII table, *Z* is placed before *a*. One use of UCASE$ is to capitalize all the letters in a string so that alphabetical sorting is done correctly.

MBASIC 2.0 does have one limitation when you create strings: they can't contain more than 32,768 characters!

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MBASIC Graphics

MBASIC graphics can be divided into two categories: BASIC commands and Macintosh ROM routines. The ROM routines, described in *Open Window* (May/June), are the same as those in MBASIC 1.0. As becomes the Macintosh, many of MBASIC's graphics commands are better than the graphics commands available in other BASICs.

The CIRCLE command starts with a definition of a center point and radius:

```
CIRCLE (200,100),50
```

This statement draws a circle with 200 and 100 as its center coordinates on the screen; it has a radius of 50 pixels. However, you can also tell the computer which part of the circle to draw, to create arcs, or to collapse the circle into an ellipse.

As with most of the graphics commands, a Step option is available with CIRCLE so that the coordinates you give can be relative to the last ones used rather than absolute, with a definite location on the screen.

Drawing a straight line is simple; you use

```
LINE (5,5)-(100,100)
```

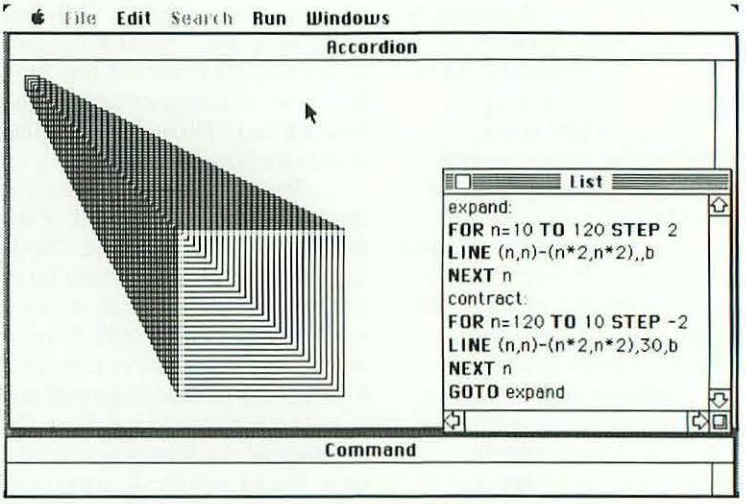
This statement draws a diagonal line beginning at the upper-left corner of the screen. The LINE command, however, does more than draw a line; with the *b* option a box appears, and with *f*, the box is filled. The statement

```
LINE (5,5)-(100,100),,b,f
```

draws a filled box whose upper-left and lower-right corners are the coordinates given in the parentheses. The double comma is necessary because the color parameter belongs in that spot; leaving that variable out simply causes the box to be drawn in the default color, black. (Don't get your hopes up: the only possible colors are black and white.)

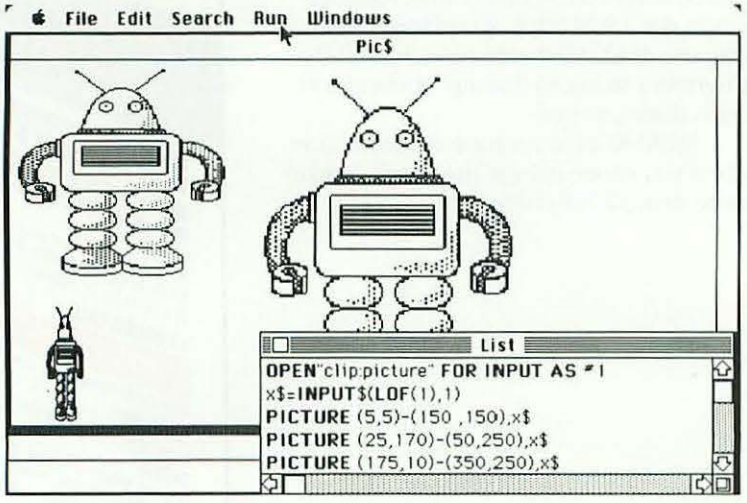
The Step option is also available with LINE, in two places. Relative coordinates can be given for the beginning of the line or for the end of the line.

The program listing in the "Accordion" figure uses the box variation of LINE. The loop draws increasingly larger boxes and then reverses and erases them. The erasure is done by using the "color" argument in the LINE command. A code of 30 signifies white, which erases the black lines by drawing over them.



Accordion

The "b" option of the LINE command draws boxes. Drawing the boxes in black and then drawing over them in white gives the illusion of motion.



Robots

The GET command stores an image in a graphic array. PUT lets you place the figure anywhere you want it in either its original or an altered size.

PSET and PRESET allow you to darken individual pixels and then erase them on the screen. You can't dip into the Macintosh Toolbox just to handle a single point on your screen, so these plotting commands will undoubtedly get a lot of use. The statement

PSET(10,50)

darkens the pixel at the specified coordinates, putting a single dot on the screen. The statement

PRESET(10,50)

"turns the pixel off," erasing the dot.

The listing in the "Echo Draw" figure illustrates the use of PSET in conjunction with its Step option. The checkmouse routine keeps the program looping until the mouse button is pressed. The draw routine PSETs a point based on the horizontal and vertical position of the mouse when its button is pressed.

Three other points are also darkened and offset from the original by using the Step option. The end result: if you draw in the upper-left quarter of the screen, the figure is echoed in the other three quadrants.

The GET and PUT statements are by far my favorite BASIC graphics commands. These commands were enhanced for MBASIC 1.0 and even further enhanced for MBASIC 2.0.

The GET statement gives the computer coordinates on the screen that describe a rectangle's upper-left and lower-right corners. Everything within the box is stored in an array, which must have been previously dimensioned to the proper size. (An array is a special way of storing information; dimensioning an array tells the computer how much memory to set aside for the information.) The PUT statement gives a coordinate on the screen, and the picture stored in the array is placed with the upper-left corner on that spot.

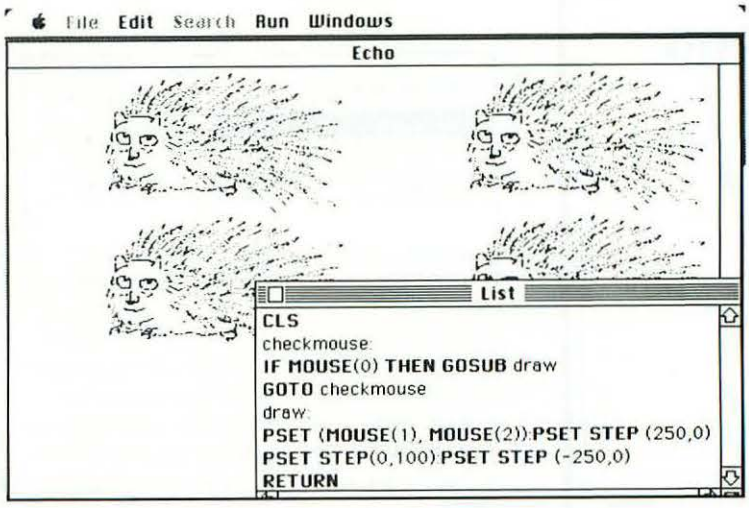
The great advantage of PUT is the command's *action-verb*. This variable lets you control the way a picture is drawn on the screen and how items will blend together.

The 1.0 enhancement to the PUT statement was that the "box" you defined with the GET statement could be drawn in a different size. You could stretch or shrink the picture stored within the box by using the PUT statement.

The 2.0 enhancement to the GET and PUT statements is the addition of an index parameter that lets you store more than one image in an array, referring to each with subscripted variables. With the index argument in the PUT statement, you can access the sequence of pictures quickly from within a loop, giving you an effective animation technique.

Last, but certainly not least, are the newest additions to the MBASIC graphics commands: PICTURE and its relatives PICTURE ON, PICTURE OFF, and PICTURE$. The PICTURE commands let you record the graphic contents of a screen and store them in a string that can be recalled and displayed.

The PICTURE commands also allow you to use the Clipboard to import (or export) information into (or out of) a BASIC program. The "Robots" program created by Greg Lobdell of Microsoft (see the "Robots" figure) demonstrates this function. Before the program was run, the robot was copied from the Scrapbook onto the Clipboard. Printing the contents of *x*$ with the PICTURE command is similar to the PUT statement, in that you can distort the image by giving different coordinates for its placement.



Echo Draw

Drawing in the upper-left corner of the screen with the mouse cursor causes four figures to appear.



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The language also has more numeric functions than you could ever use in one program. In Financial MBASIC, numbers are automatically stored as double-precision numbers. This feature provides a high degree of accuracy because double-precision numbers are stored with up to 14 digits of precision. The decimal math pack in Financial MBASIC also guarantees extra precision in dollars-and-cents calculations.

Everything in Between

I have described the highlights of MBASIC 2.0, but many other features are available that give you great programming flexibility. For instance, some of the usual MBASIC graphics commands (see "MBASIC Graphics") have been enhanced; these take advantage of the graphics capabilities of the Macintosh. MBASIC also has several Save options. Programs can be saved in any of three formats—Compressed, Text, and Protected. Compressed format saves the program in a binary version, which takes up less space on disk. Text format makes the program file accessible to a word processor, and Protected format makes the program unlistable (see Figure 6).

Besides letting you use a menu option or a BASIC command to load a program directly from the desktop or from within the language, MBASIC lets you load programs so that they run immediately after loading. You can also combine programs and string them together with the MERGE and CHAIN commands. With these commands you can combine shorter programs into longer ones, both while you write a program and while the program runs.

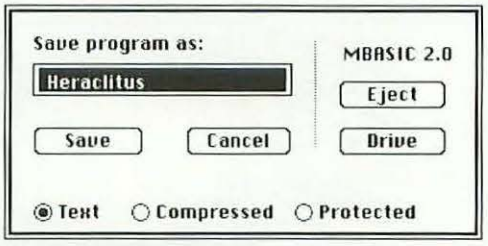


Figure 6

MBASIC programs can be stored in three different formats. You use Text format when you want the program file to be accessible to a word processor, to both versions of MBASIC, or if you plan to use functions such as MERGE or CHAIN. Compressed, or binary, format takes up less room on a disk. A program saved in Protected format cannot be listed.

You can create and access both random and sequential files with MBASIC. You also have the ability to address programs and data on an external disk drive. Since the BASIC disk itself does not have much space to store data files, access to a second disk is important.

The revised documentation promises to be a great improvement over the MBASIC 1.0 documentation. The Macintosh ROM routines that MBASIC can use, for example, are much better documented. While reading the preliminary documentation for MBASIC 2.0, I found the intriguing sentence: "Machine language routines can be dynamically bound to BASIC at run time." This capability opens a wealth of advanced possibilities; any routine from a "library" can be called from within your program. However, this very advanced programming technique is not for the faint of heart, and you will need additional information (available from Microsoft), before you can begin to "dynamically bind."

This implementation of the language does have its faults. My chief complaint is the lack of an Undo command. I have often selected segments of a program, intending to copy them to the Clipboard, and pressed Shift-C instead of ⌘-C. I am then left with a capital *C* in place of a dozen lines of unsaved program code.

Trading Up

If you bought MBASIC 1.0, you can get the new version by sending Microsoft your 1.0 disk and an upgrade fee. The exact fee was not set at press time, but it will be in the $50 range. The programs you wrote with MBASIC 1.0 run under version 2.0, so the upgrade fee is worth every penny. Check with your Apple dealer for more information. □

▲▲▲▲▲▲▲▲▲▲▲ *Sharon Aker is a freelance journalist and author of two forthcoming books:* MacPack *(Ashton-Tate) and* Microsoft BASIC for the Mac: A Beginner's Guide *(Scott, Foresman & Co.)*

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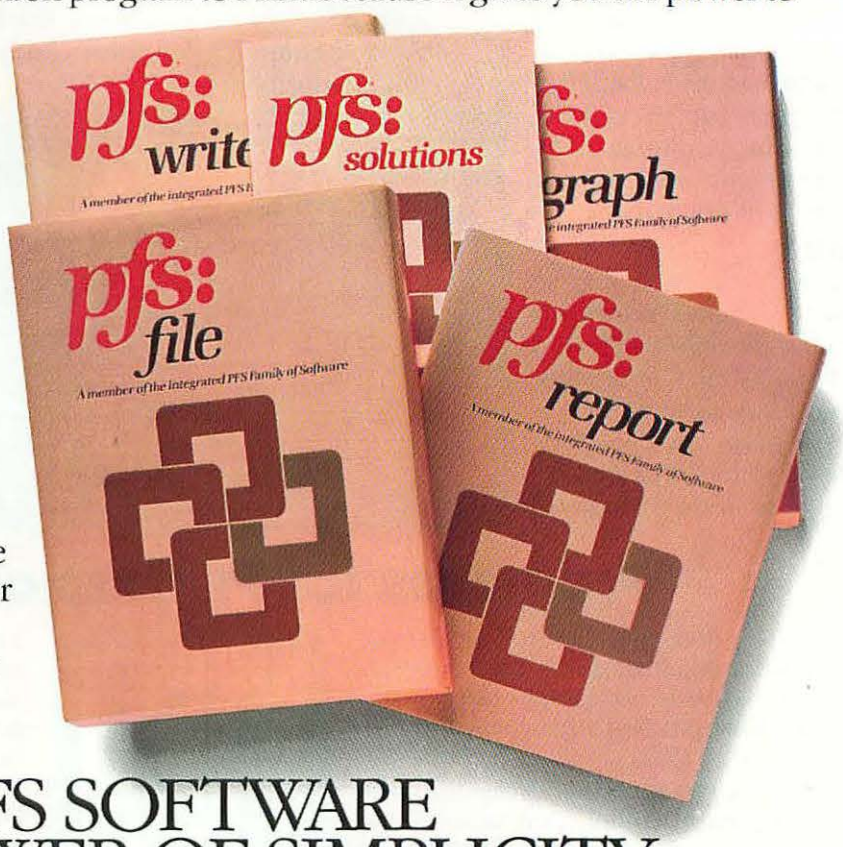
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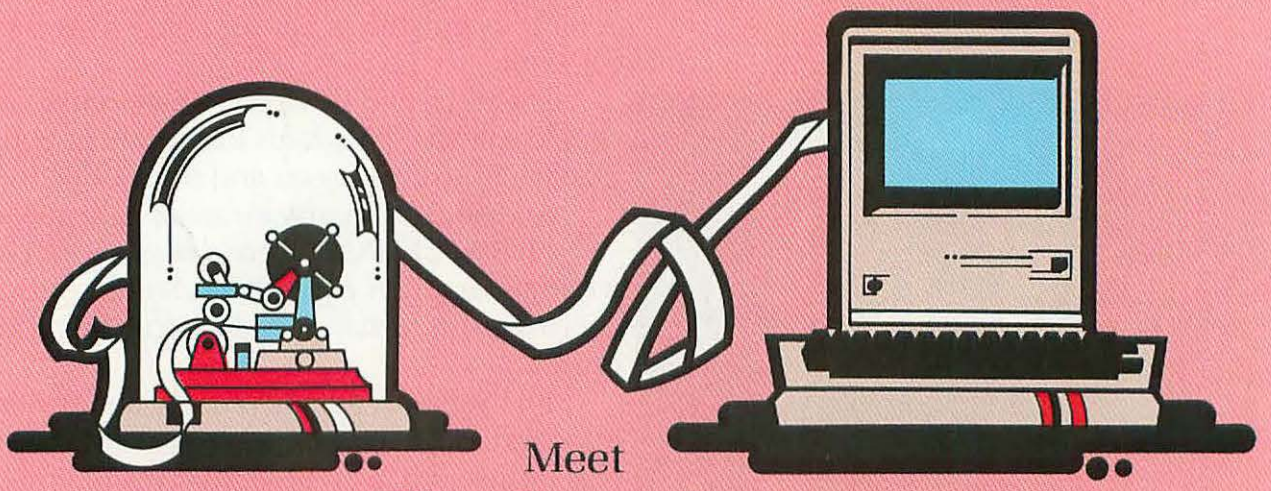
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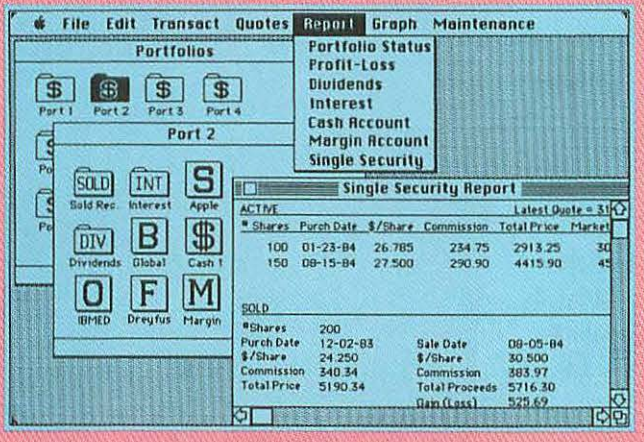
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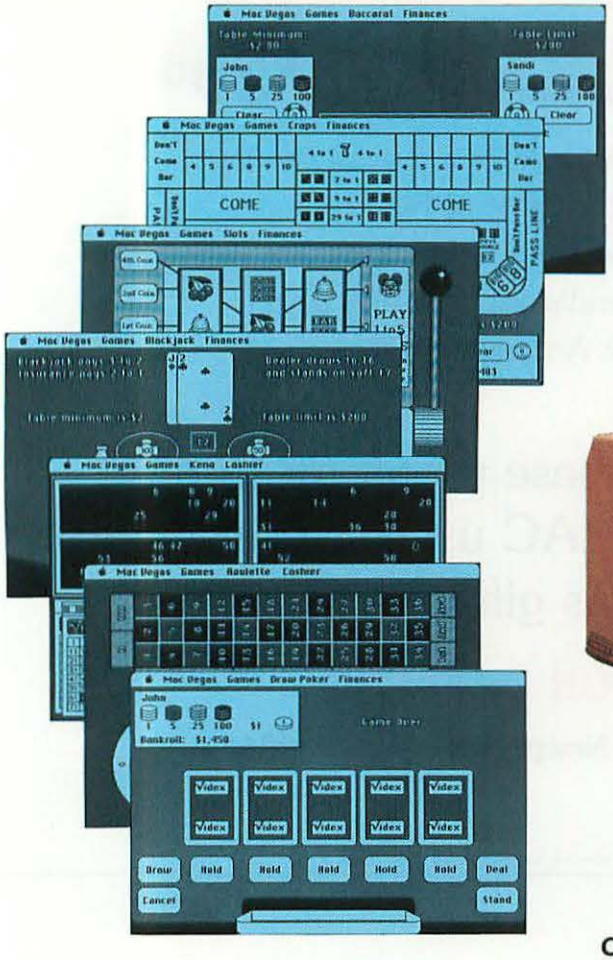
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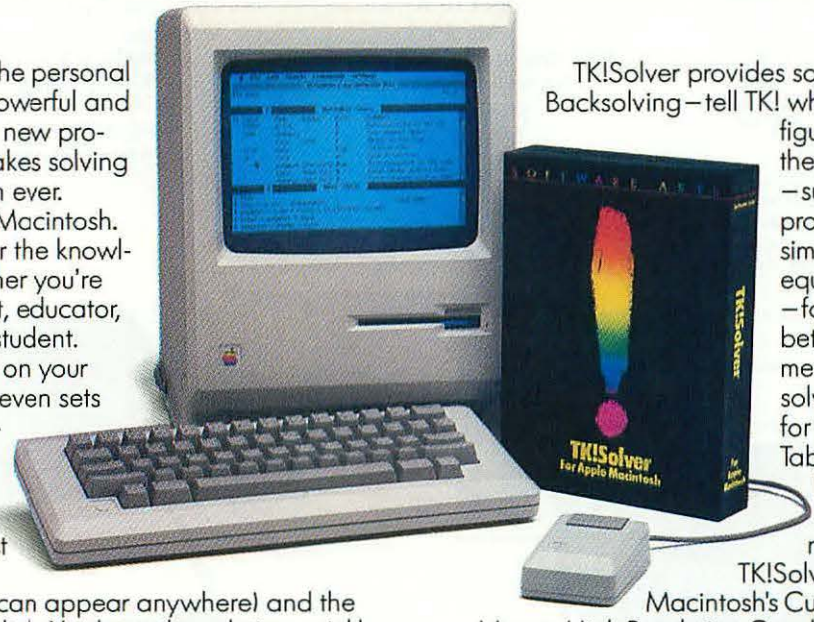
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Customer Evaluation

For *Sales Edge* to guide you in a sales campaign, you must first supply information about your personality and that of the prospective client. From these observations, *Sales Edge* garners information to make judgments on how you should deal with the client.

Completing the self-assessment inspires the curiosity you feel when taking a *Reader's Digest* test. You simply agree or disagree with 86 statements about your personality. Statements range from "I worry about making sales more than most" to "I believe in the need for a strong national defense." From these clues, *Sales Edge* gathers enough information to judge the strengths and weaknesses of your character (see Figure 1).

The self-assessment is matched against an assessment you make of the sales prospect's personality traits. Assessing a potential buyer is as easy as taking a true/false test. Groups of adjectives are displayed on the Macintosh's screen, and you decide whether a particular adjective correctly describes your client. You decide whether a client is "conservative," "social," "flashy," "a hard bargainer," or even "hostile." The 50 adjectives span a range of common behavior traits (see Figure 2).

Although "lean" and "mean" aren't part of the parcel of client adjectives, they certainly describe *Sales Edge*'s rapid personality assessment process. Completing the rundown of 50 personality traits is supposed to take less than 4 or 5 minutes–an unquestionably small amount of time in which to understand a person's character. The rapid assessment feature may appeal to busy salespeople who don't want to complete lengthy tests just to get a little helpful sales advice. Needless to say, *Sales Edge* puts a lot of faith in your perspicacity.

Sales Strategies

After you clue in *Sales Edge* about yourself and the potential buyer, the program manufactures a report from sales advice tailored by experts. No matter how ambiguous or complex the client's person-



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Kensington Maccessories Starter Pack	70.00	59.00
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MegaFiler	195.00	148.00
Microsoft Basic	150.00	122.00
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Word	195.00	148.00
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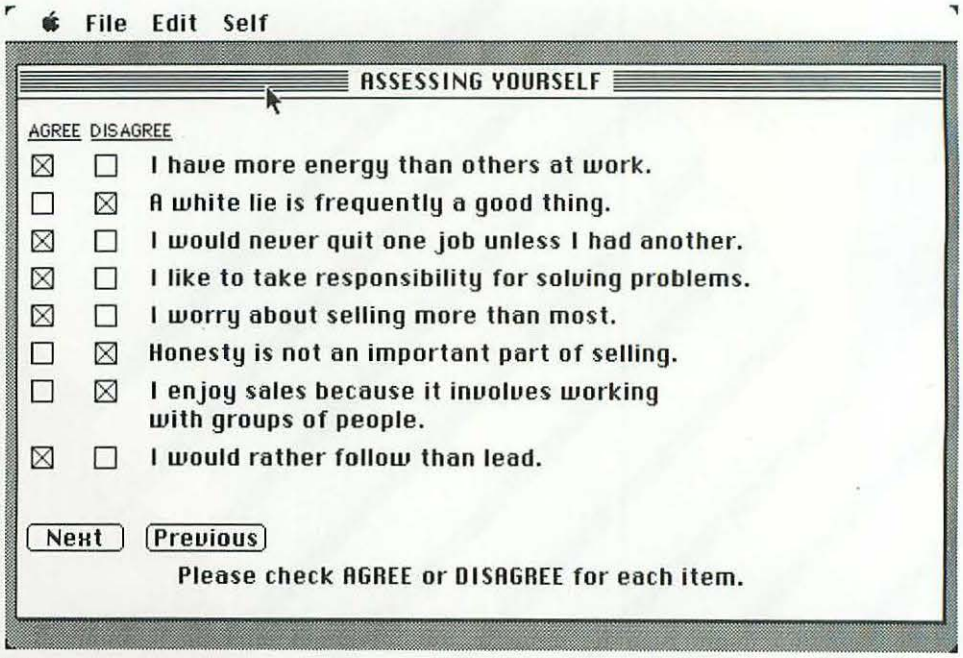


Figure 1
Before offering any advice, Sales Edge *requires you to supply information about your personality and that of the prospective client. In the self-assessment, you agree or disagree with 86 statements contained in a series of dialog boxes, such as the one shown here.*

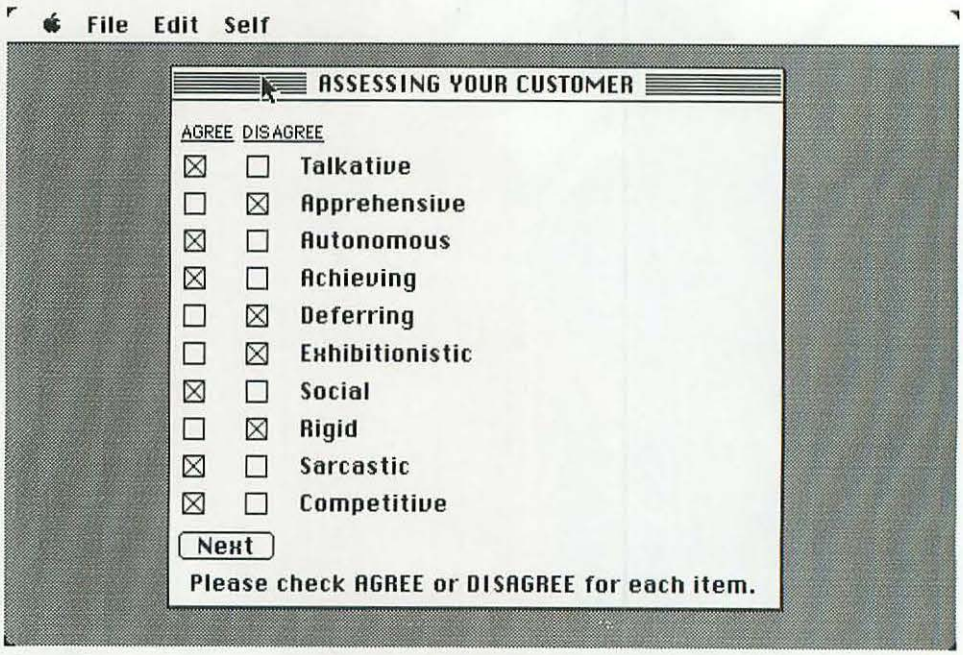


Figure 2
You complete the assessment process by deciding which of 50 adjectives, contained in a set of dialog boxes, correctly describe your client.

ality, *Sales Edge* conjures up concrete recommendations for your sales approach. Reports are divided into three sections and range from three to ten pages of advice that can be displayed on the Mac's screen or printed.

The first section of the report counsels you on how to act during the opening of a sale, which is when most prospects decide whether or not they will give you their attention (see Figure 3). If you're introverted and your client is gregarious, for example, *Sales Edge* may suggest you demonstrate that you "like" the client by showing a personal interest and giving compliments.

The second section of the report recommends techniques intended to keep the transaction on a successful track. *Sales Edge* might tell you that a client is most interested in exciting concepts, so your presentation should avoid unnecessary detail. The report might also advise you to encourage a "resisting" client to voice unspoken objections; once announced, the objections can be addressed and overcome.

The third part of the report tells you how to conclude the sale by suggesting two or three closing strategies. To close a sale, the program might recommend that you coax a client to describe the product features he or she desires while you write them on a blank order form. When the client is finished, you wind up the sale by presenting the completed order form for the client's approval.

Program Design

Does *Sales Edge* provide good counsel? Is it a reliable and valid tool for sales professionals?

The president of Human Edge Software, James Johnson, claims *Sales Edge* is an expert system developed by a staff of psychologists and experts in the social sciences and business management. The information contained in *Sales Edge,* however, was not scientifically tested and analyzed. The sales strategies and advice were compiled by researching a wide spectrum of publications on sales and management. After gleaning pearls of sales wisdom from these works, the Human Edge staff matched the advice to likely models of interaction between different kinds of personalities.

For example, if a person who is outgoing and confident interacts with a person who is difficult to approach and inflexible, what should the outgoing person do? The Human Edge staff sifted through the sales

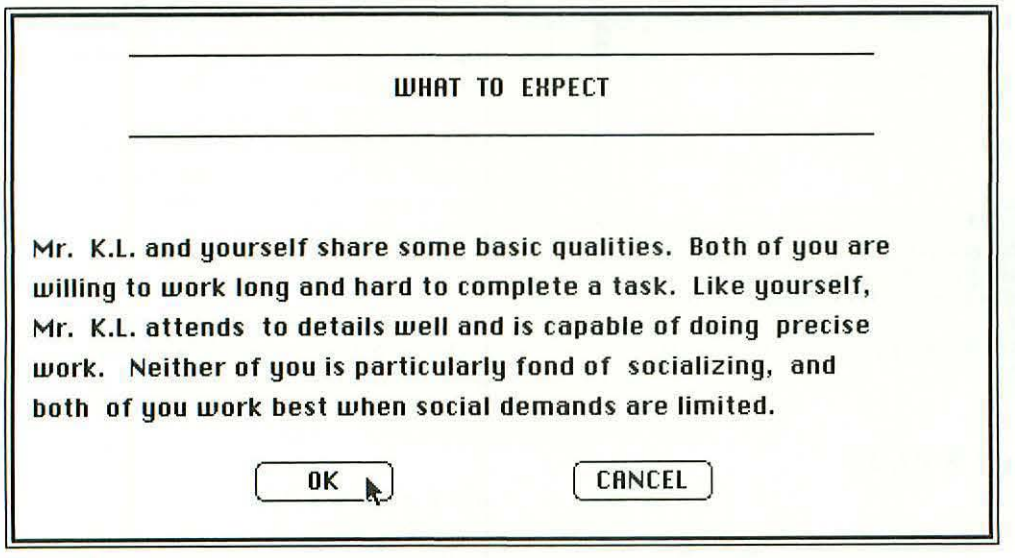


Figure 3
This selection shows a small portion of the advice provided by Sales Edge *in a sample sales report. Reports can be three to five pages long.*

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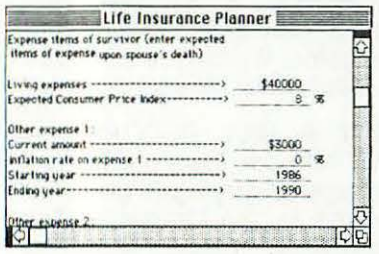
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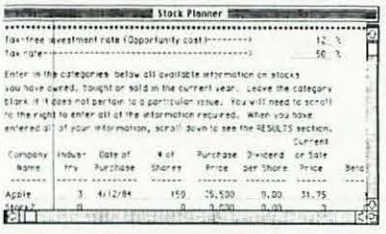
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information garnered from their research and decided what recommendations should be made. The report, then, is a combination of research and speculation applied to a hypothetical human interaction. The validity of *Sales Edge*'s design depends on whether you accept the "experts'" opinion.

Even if you believe that the program's design assumptions are sound, the weakness of *Sales Edge* remains in "the eye of the beholder." The appropriateness of the advice offered by the program depends heavily on how astutely you observe your client and yourself. After a 5-minute sizing up of a potential client, a salesperson may not always be perceptive enough to produce a reliable assessment. People also change; a prospect may be friendly on the day you form your first impressions but combative on the day you try to make a sale.

Regardless of the basis of the design of *Sales Edge* and the accuracy of your observations, you might be able to profit from the program's advice. The guidance provides a set of alternatives that can help you make decisions. In addition to the recommendations contained in the reports, the *Sales Edge* documentation provides information about the elements of sales and basic principles for success. The program is also useful because it helps you conceptualize future sales interactions.

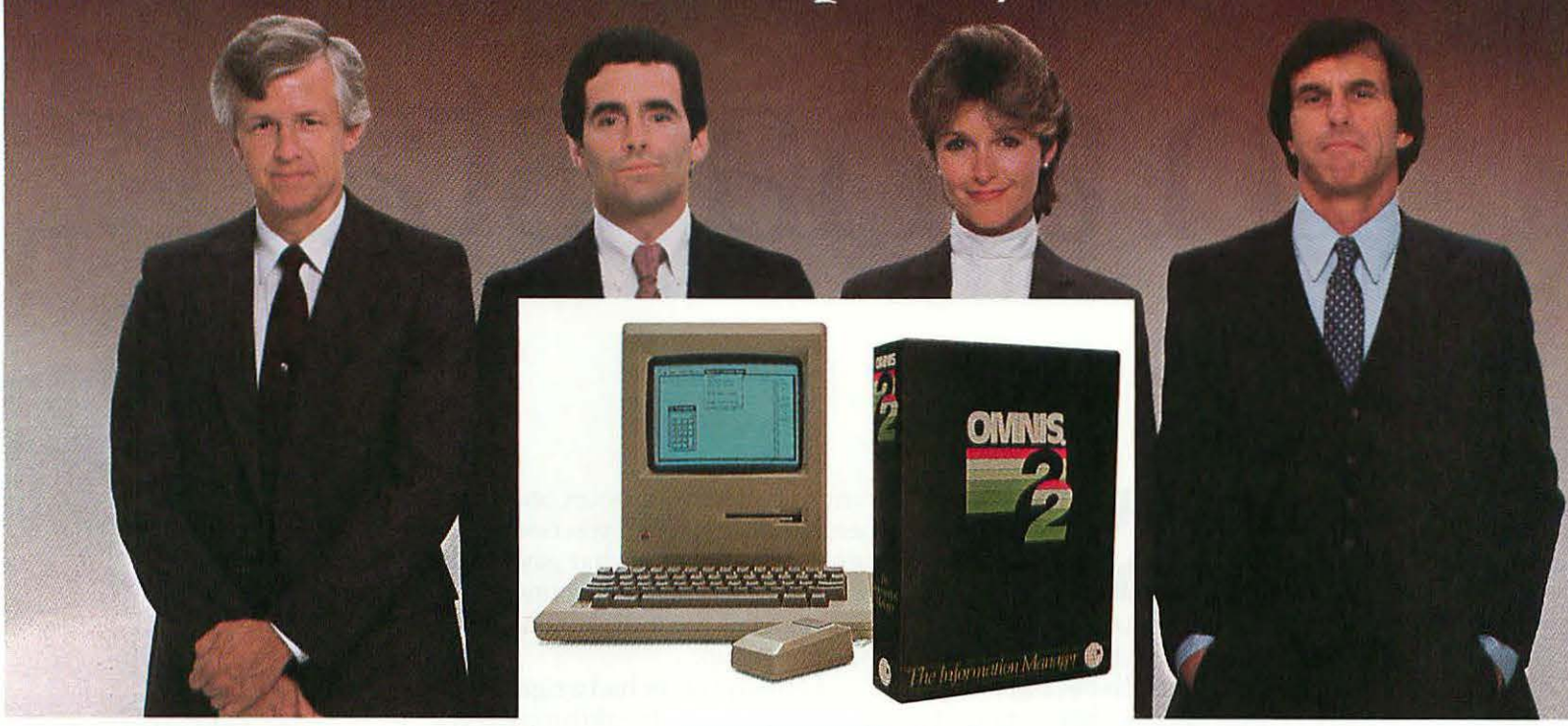
Using *Sales Edge* might be an interesting and fun way for novices to learn new sales techniques and for pros to review familiar ones. It's likely, however, that after a short acquaintance with *Sales Edge*, salespeople will become disenchanted with its repetitious advice and consign the program to the shelf. □

◢◢◢◢◢◢◢◢◢◢◢ *Bill Grout reviews software for the* San Francisco Chronicle *and is coauthor of* Word Processing with the IBM PC.

◢◢◢◢◢◢◢◢◢◢◢

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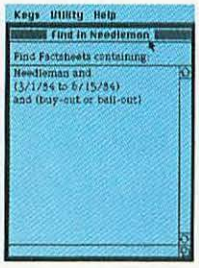
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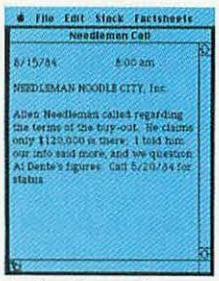
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Let's say you've had a significant breakthrough on your project. (Or case, or campaign, or analysis.) You click Factfinder on, jot down the essentials on our electronic equivalent of a notepad (which is always right where you want it and never runs out of paper or gets runny because somebody put coffee on it).



When you've finished keying in your notes on the Needleman Plan (or Needleman vs. Nardoff or the Needleman Noodles campaign) in any length you want, you click the mouse on a few key words—"fallout," "bail-out," "roll-out," leveraged buyout," "March 14," whatever.

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Needleman

Then, any of those words or even part of those words will bring you a stack of any notes you've made that include "Needleman," or "leveraged buyouts," "national rollouts" or miracle "bail-outs." Or you can request Factfinder to get you the Factsheet that contains "Needleman" *and* "bail-out" *and* "March 14." Or you can ask for anything that mentions "bail-out" or "Needleman."

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Macware News

The latest developments in Macintosh software, hardware, and accessories

Edited by Erfert Nielson

Macware News *announces new Macintosh products. Those listed here are available now or will be in the near future. We will keep you informed of developments as the number of products for the Mac increases.*

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MacGAS

A glossary and spelling checker that includes antonyms and synonyms. You install the program on a *MacWrite* disk and choose SpellChec to check a single word or DocChec to check spelling throughout a document. When the correctly spelled word is displayed, you can select it with the mouse and drag it over the incorrect word. If you are creating a document on a single-drive Mac, *MacGAS* has access to approximately 20,000 words; if you are using a two-drive system, it has access to approximately 80,000 words. You can, however, load and use the 80,000-word dictionary on a single-drive Mac when you are checking an entire document. List price: $99.95.

■ *Assimilation Process*

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Cupertino, CA 95014
408/446-0797

Mac Spell Right

A spelling checker that you can transfer to disk-based *MacWrite* and select from the menu bar. When used with a single-drive Mac, *Mac Spell Right* provides a dictionary with approximately 10,000 word roots. When used with a two-drive system, the program has access to a 30,000-word dictionary and a thesaurus. Since the spelling checker is installed in *MacWrite,* you can check words while you are typing a document, as well as search a finished document for spelling errors. *Mac Spell Right* automatically inserts correctly spelled words. List price: $89.

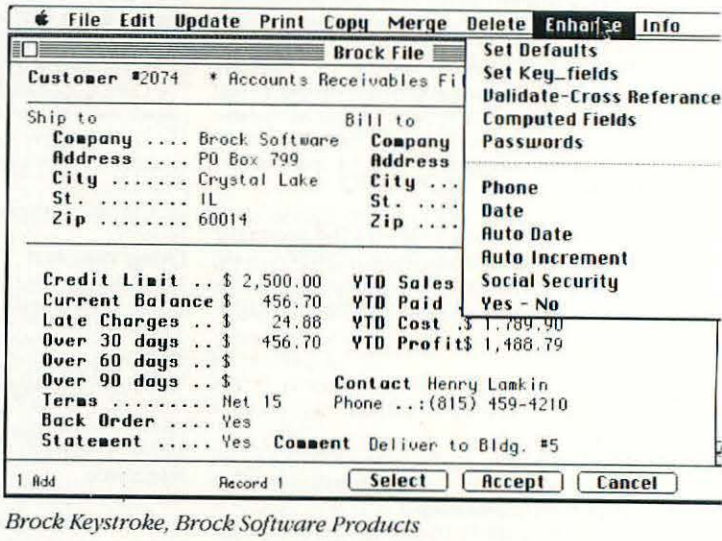
■ *Brock Software Products, Inc.*

8603 Pyott Rd., Box 799
Crystal Lake, IL 60014
815/459-4210

Brock Keystroke

A data base and report generator with a cross-reference feature that permits you to access information from one file while working on another. The information from the cross-referenced file appears in the appropriate spot in the new record, so you don't have to enter it from the keyboard. A find/update function enables you to find information in any field or combination of fields.

Other features include field formatting, help menus, automatic repeat fields, computed fields, and passwords. The report generator includes flexible formats, highlighting, and computed columns. With it you can also sort information and print mailing labels. List price: $395.



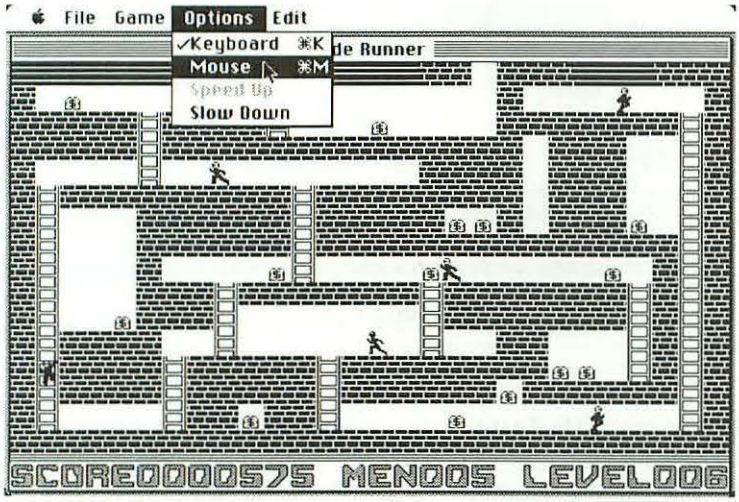
Brock Keystroke, Brock Software Products

■ *Broderbund Software, Inc.*

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San Rafael, CA 94903
415/479-1170

Lode Runner

An arcade-style game that pits galactic commando against a gang of guards in a quest to recover stolen chests of gold from the Bungeling Empire's treasury. Each of the game's 150 playing screens represents a different room in the treasury. The galactic commando must evade the guards while he runs, jumps, and climbs through the rooms, picking up chests as he goes. *Lode Runner* has a built-in game generator that lets you create custom



Lode Runner, Broderbund Software

playing screens by "painting" game elements across the screen with the mouse. You can play using either the keyboard or the mouse. List price: $39.95.

■ *CE Software*

801 73rd St., Dept. M
Des Moines, IA 50312
515/224-1995

Desk Accessory Mover
A program that allows you to manipulate the Mac's desk accessories (the Scrapbook, Alarm Clock, Note Pad, and the other choices in the Apple menu). With *Desk Accessory Mover,* you can remove unwanted desk accessories to save disk space, copy desk accessories to files for storage, rename accessories to personalize your screen display, and move desk accessories to other disks. Two additional desk accessories–the Executive Decision Maker and the FRP (Fantasy Role-Playing) Die Roller–are included on the disk. List price: $15 (contact CE Software for distribution information).

■ *DataViz, Inc.*

P.O. Box 1319
Norwalk, CT 06856
203/866-4944

MacLink
A program that transfers data between a Macintosh application and a comparable application on an IBM PC or PC-compatible computer. For example, *MacLink* can convert *Lotus 1-2-3, VisiCalc,* or *Multiplan* spreadsheets from the PC version to the Macintosh version of *Multiplan.* The program can also move word processing files from the PC into *MacWrite* or convert BASIC programs into Microsoft BASIC.

MacLink's "data bridges" work in either direction (Mac to PC or PC to Mac) using a modem or cable connection. Communications features permit the Mac to be used as an ASCII terminal for communicating with other personal computers, mainframe computers, and online information services. List price: $95 ($125 including an 8-foot interface cable).

■ *DNA, Inc.*

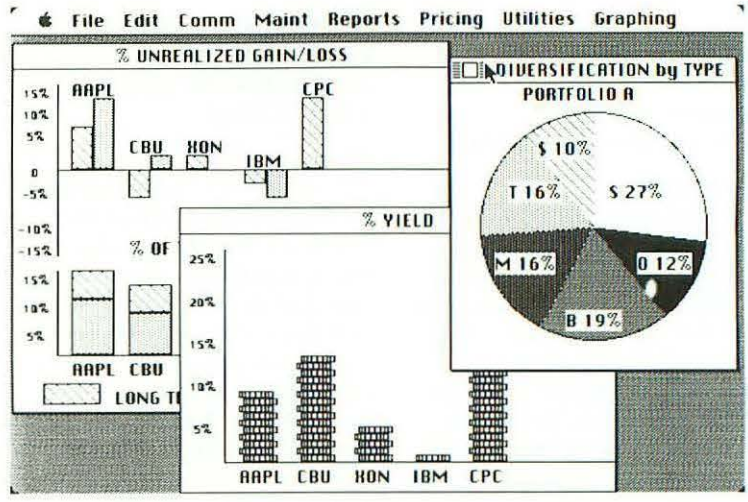
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713/778-9270

MacGraphics
A disk containing pictures that can be pasted into *MacPaint* or *MacWrite* documents. Volume 1 includes a variety of graphics and borders, plus patterns that can be inserted into *MacPaint*'s pattern palette. The manufacturer plans to include graphics, fonts, and animated games in future volumes. List price: $24.95.

■ *Dow Jones Software*

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800/257-5114, 609/452-1511

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A program that maintains up to 26 stock portfolios and can keep up to 500 open positions. Used in conjunction with the Dow Jones News/Retrieval service, *Market Manager PLUS* automatically assigns prices to your portfolios from the Dow Jones Current Quotes data base. The program's features include comprehensive tax-lot accounting, full commission accounting, automatic dividend distribution, automatic stock split routines, and graphic presentation of portfolios. *Market*



Market Manager PLUS, Dow Jones Software

Manager PLUS automatically alerts you when a security price reaches your critical buy or sell level. The program includes a Dow Jones News/Retrieval membership and one hour of free use. List price: $199.

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805/969-7874

ExperLogo
A version of Logo that uses Macintosh features such as pull-down menus, multiple windows, and the mouse. Since ExperLogo is a compiled Logo, it runs faster than previous versions of the language. ExperLogo can be used to introduce children to programming, and additional features increase Logo's potential as a program development language. In addition to the standard "turtle graphics," ExperLogo has "bunny graphics," which respond to 3-D navigation commands such as ROLL, PITCH, and YAW, and can traverse the surfaces of spheres on the screen. Procedures are stored on disk and loaded on call, so ExperLogo programs are not limited to 128K of memory. ExperLogo can process items and lists using arrays, which are useful for storing numeric information. List price: $149.95.

Owl Software

79 Milk St. #1108
Boston, MA 02109
800/343-0664 ext. 5500

Soft Start
A series of *Multiplan* worksheets and *MacPaint* documents designed for personal and business use. The Personal Finance volume contains Budgeting, Stock and Bond Portfolios, Basic Property Management, Cash Flow, Net Worth, Checkbook and Credit Card Balancing, and Mortgage Analysis worksheets. The Business Analysis volume contains Cash Flow, Income Statement and Balance Sheet Analysis, Receivables and Payables, Payroll Schedules, and Breakeven Analysis worksheets. The volume of predrawn business forms contains Invoices, Statements, Purchase Orders, Payable Vouchers, Payroll Register, Inventory Control, Telephone Message, and Planning Calendars. List price: $49.95 per volume.

Palantir Software

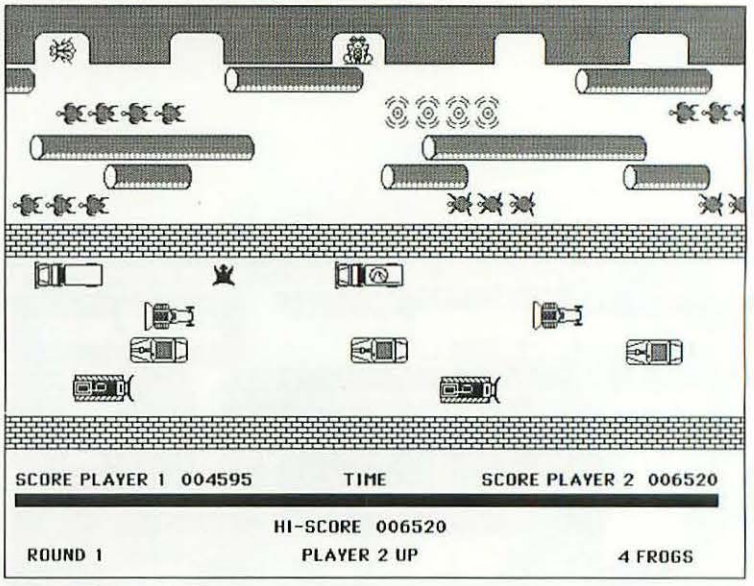
7701 Wilshire Pl. #110
Houston, TX 77040
800/368-3797, 713/939-1488

MacType
An interactive typing tutor program that teaches touch typing for QWERTY, Dvorak, and extended character set keyboards. For the beginner, *MacType* teaches basic keyboard layout and typing techniques. At the intermediate level, the program improves efficiency; at the advanced level it helps increase speed. *MacType* is self-paced and prompts you for testing once specific achievement levels are reached. Tests are scored for both speed and accuracy. Performance scores for several students can be stored on a single disk. List price: $49.95.

Shaherazam

P.O. Box 26731
Milwaukee, WI 53226
414/442-7503

MusicType
A program that provides a musical notation font that enables you to use the Macintosh as a music typewriter. You enter a note and the accompanying staff lines with a single keystroke. You can also add lyrics, chord symbols, and other embellishments. The program allows you to edit your scores with *MacPaint*'s editing features. List price: $49.95.



Frogger, Sierra On-Line

Sierra On-Line

P.O. Box 485
Coarsegold, CA 93614
209/683-6858

Frogger
An arcade-style game in which you maneuver a frog across a highway teeming with speeding cars and trucks and then across a river filled with floating logs. Points are awarded when a frog reaches the safety of the opposite shore. You use the mouse to move the frog. List price: $39.95.

SofTech Microsystems, Inc.

16885 W. Bernardo Dr.
San Diego, CA 92127
619/451-1230

Software Development Systems
SofTech's UCSD Pascal Development System gives programmers access to mouse, graphics, and font ROM routines, enabling applications to take advantage of the Mac's user interface. UCSD Pascal and Apple Pascal are sufficiently compatible to allow porting of Apple II and Apple III programs to the Macintosh. UCSD Pascal programs running on other machines, such as the IBM PC, can also be ported.

The FORTRAN-77 Development System provides an ANSI-77 subset of FORTRAN with support for structured programming and improved character types.

The Advanced Development Toolkit augments the software development environment provided with UCSD Pascal and FORTRAN-77. The Toolkit includes source code for graphics/mouse interfaces, a symbolic debugger, a 68000 assembler, and a linker. List price: UCSD Pascal $195, FORTRAN-77 $295, Toolkit $150.

Superex Home Software

151 Ludlow St.
Yonkers, NY 10705
800/862-8800, 914/964-5200

Home Executive
An integrated software package that consists of nine programs designed for home use. Each program includes a report generator. The Financial Analyst program consists of four sub-

programs that determine monthly payments on a fixed-rate loan or mortgage, calculate compound interest, determine how large an initial investment to make in order to withdraw a certain amount monthly, and calculate how much an initial investment will be worth at a future time.

The Portfolio Manager records investment transactions and automatically calculates net gains and losses. Another program, Expenses, generates itemized payments that you can attach to tax returns. The Address Book program allows you to store up to 3000 entries and print copies with the report generator. Also included are Appointment Book/Calendar, Checkbook, Collector's List, Gift List, and Household Inventory applications. List price: $89.95.

■ *Trivial Compute Company*

3527 Oak Lawn #179
Dallas, TX 75219
214/559-4233

Trivial Compute, World Class Edition
A game that presents multiple-choice trivia questions in categories such as International Sports and Resorts, Lifestyles of the Rich and Famous, Royalty, and Celebrities. The game has three levels of difficulty and may be played by one to six teams or individuals. List price: $44.95.

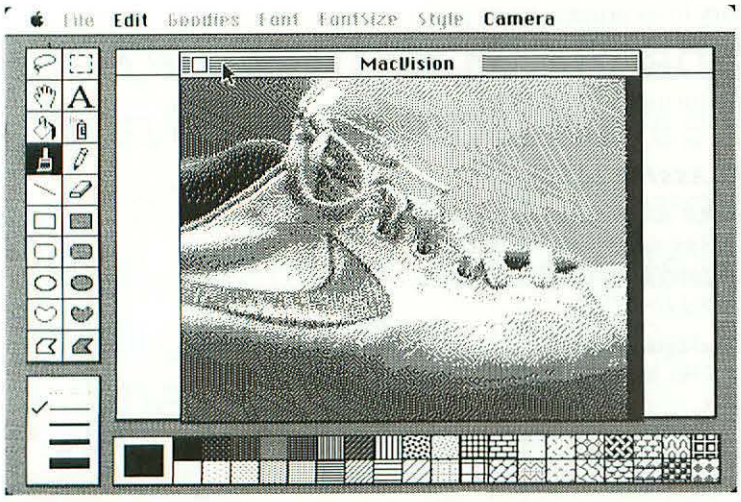
Hardware

■ *Assimilation Process*

20833 Stevens Creek Blvd.
Cupertino, CA 95014
408/446-0797

Mac Turbo Touch
A device that attaches to either side of the Macintosh keyboard and performs the same functions as the mouse. You roll a tracking ball on top of the device to move the pointer, and press or click one of the two buttons beside the tracking ball as you would the mouse button.

According to the manufacturer, Mac Turbo Touch speeds up text entry because you don't have to take your eyes off the screen while looking for the mouse. Also, you don't have to move your hand far from the keyboard to select text or commands. Since you manipulate the tracking ball with your fingers, Mac Turbo Touch provides a more direct means of cursor control than does the mouse. Mac Turbo Touch is attached to the keyboard with Velcro and connected to the Mac's mouse port. List price: $129.



MacVision, Koala Technologies

■ *Koala Technologies Corp.*

3100 Patrick Henry Dr.
Santa Clara, CA
95052-8100
408/986-8866

MacVision
A digital imaging system that enables you to display and save a digitized picture on the Mac's screen. The system consists of two components. The first component is a hardware interface, which is attached to the Mac's modem port and to a video camera or videocassette recorder. The second component is a disk that allows you to install MacVision as a desk accessory in the Mac's Apple menu.

To operate MacVision, you select Camera from the Apple menu. The program scans the video image and you adjust the brightness and contrast; both a single scan and a repeat scan option are available. When the image is satisfactory, you can save it as a document and retouch it with *MacPaint* before printing it out. Images are displayed at a resolution of 320 by 240 dots in the MacVision window. List price: $349 (camera not included).

■ *Quark Incorporated*

2525 W. Evans #220
Denver, CO 80219
303/934-2211

QC10 Hard Disk
A 10-megabyte mass storage system that allows you to divide data into a number of volumes, each of which can be password-protected. The QC10 is also compatible with the Apple IIc, Apple IIe, and Apple III. List price: $1995.

■ *Technological Services Company*

P.O. Box 2125
Clinton, MS 39056
601/924-3304

MSI-1
A high-speed interface from the Mac's serial port to the STD Bus. The MSI-1/STD connection allows you to connect the Mac to a variety of peripherals (D/A and A/D converters, color monitors, or video digitizers, for example). The MSI-1 package includes the MSI-1 computer card, a manual, a disk containing communications software, and a list of STD expansion products. It also includes SOFTPANEL.EX, a software package that enables you to control and monitor motors, lights, fans, and other devices. List price: $350.

■ *Visionary Electronics, Inc.*

141 Parker Ave.
San Francisco, CA 94118
415/751-8811

Visionary 1200
A stand-alone personal computer communications and networking device that combines the capabilities of a direct-connect modem with an electronic mail, Telex, and TWX communications station. The Visionary 1200 contains its own microprocessor and communications software. You can transmit and receive data while using the Macintosh for other tasks, or even when the computer is turned off. The Visionary 1200 operates at 1200 and 300 baud and is compatible with Bell 212A and 103 series modems. It comes with two RS-232C ports, two telephone jacks, and a clock/calendar. List price: Visionary 1200 with 2K of memory $795, each additional 16K of memory (up to 48K) $100.

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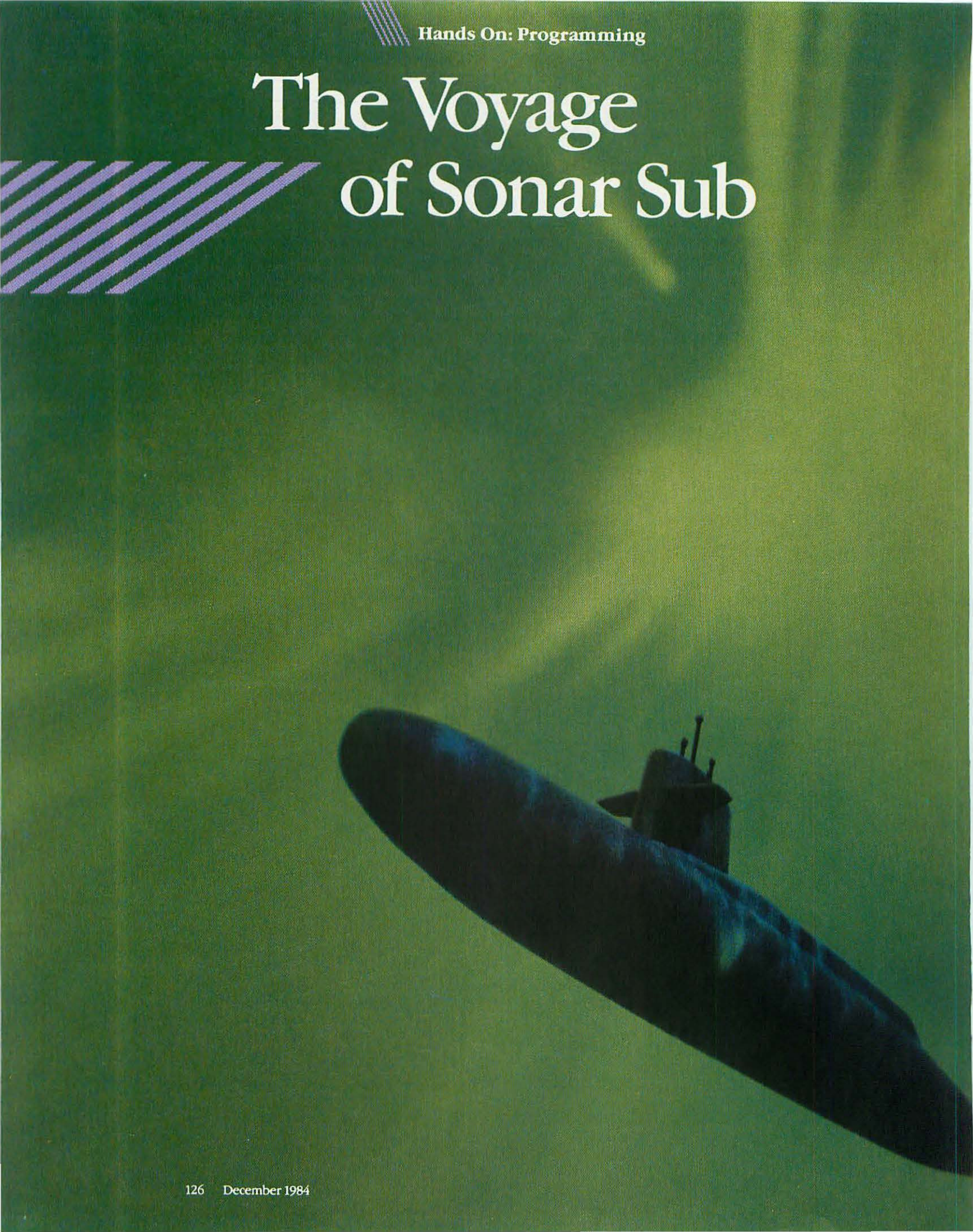
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The Voyage of Sonar Sub



Rob Dickerson

You are the commander of a submarine on a perilous journey deep in enemy territory. The waters are planted with an endless supply of deadly "smart mines," which use sophisticated sensors to stalk your sub. The onboard computer status window shows that your air supply is getting low and battery power is quickly declining. You need to surface for a few moments to replenish the air supply and recharge your batteries.

Sonar detects a mine approaching the hull of the ship. You quickly take evasive action: engines half forward, ballast full down, diving plane half down, fire torpedo, ballast half up, diving plane full up, a near miss. You immediately shift engines into full reverse. The mine is only an inch away from destroying or damaging your sub, and your battery power is almost at zero. . . .

Sonar Sub is an arcade-style game, written in Microsoft BASIC (MBASIC) version 2.0, that gives you command of a submarine and pits you against deadly "smart mines." The game not only entertains, it demonstrates how you can use menus, windows, control buttons, sound, graphic animation, and the mouse to create an exciting game. (See "Microsoft BASIC Comes of Age" in this issue for an in-depth look at the language.) The object of *Sonar Sub* is to destroy as many enemy mines as possible. Mines stalk the sub and try to make contact with it. As sub commander, you must use the menu controls to elude the mines and lure them into the line of torpedo fire. The mines are smart enough to avoid your line of fire, but they can be fooled and blunder into one of your torpedoes.

The program's pull-down menu titles include Ballast, Engines, Diving Planes, Torpedo, Repairs, and SOS (see Figure 1). You control the fate of the sub by using the mouse to choose from the options listed in the menus. The Ballast menu controls the level of the sub, and the Engines menu determines the sub's speed and direction. With the Diving Planes menu, you increase or decrease the angle at which the sub dives underwater or rises to the surface. You maneuver the sub by controlling the ballast tanks, diving planes, and engines. Only one option is given in the Torpedo menu: Fire. The Repairs menu lets your sub recover quickly from damage caused by the mines. And the SOS menu's lone option–STOP: Reset Menu–immediately stops the game and restores the standard MBASIC menus and windows.

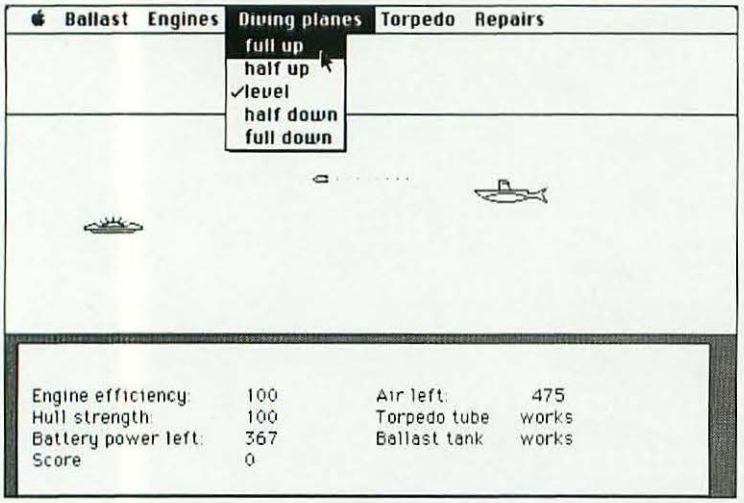


Figure 1

The mines avoid the torpedo unless you lure them into the line of fire with the Ballast, Engines, and Diving Planes controls. In the situation presented here, setting the diving plane at "full up," the engines at "half forward," and the ballast control at "half up" causes the mine to follow the sub's upward path until the mine is intercepted and destroyed by the torpedo.

The status window at the bottom of the game's screen provides information about the sub's engine efficiency, hull strength, battery power, air supply, and the number of mines it has destroyed. The window also reports on the working conditions of the torpedo tube and ballast tank. You repair the sub by clicking on the options in the Repairs menu. Be sure to make the repairs needed to keep your sub in battle-ready condition.

When the sub is on the surface, the batteries automatically recharge and the air supply is replenished. When the sub dives underwater, the air supply is depleted and the engines drain battery power. The game finishes when the sub's hull collapses or you run out of air.

Like most arcade games, *Sonar Sub* has beeps and other sound effects to make the game seem realistic. You regulate the sound volume with the Control Panel. To switch the sound off, you set the volume control at zero. Normally you adjust the sound level before you start up the program.

The prerelease version of MBASIC 2.0 that was used to create *Sonar Sub* had a bug that caused desk accessory windows and the *Sonar Sub* playing window to overwrite each other. If you open a desk accessory such as the Control Panel during the game and notice the sub and mines wandering through the accessory's window, close the desk accessory window and start the game over. Hopefully, the problem will be eradicated by the time you read this warning.

Taking Command

Start up the Engineering version of MBASIC, and type in the *Sonar Sub* program (see the listing "*Sonar Sub* Code") in the empty List window. (You can also download the program from CompuServe, where it is listed in the Reference Library (section XA4) of the Micronet Apple user group.) If you have used *MacWrite* to edit text, you already know how to use the BASIC editor because both programs require similar editing techniques. Be sure to save your work periodically.

(continues on page 134)

```
'--------------------------------------
'                Sonar Sub
'--------------------------------------
' This program is designed  to demonstrate
' the menu and graphic functions provided
' by Microsoft BASIC 2.0.
'
'--------------------------------------
'  Main control loop
'--------------------------------------
main:
 GOSUB initsys        'initialize the system
 ON MENU GOSUB udatm
mloop0:
 GOSUB initgam        'initialize the game
 WHILE alive
  FOR loopm=0 TO 5
   MENU ON
   MENU STOP
   GOSUB udatsub    'update sub position
   GOSUB udatemy    'update enemy position
   IF torp THEN GOSUB udatorp 'update torpedo position
  NEXT loopm
  GOSUB udatcond     'update sub conditions
  GOSUB makesound    ' make a sound
 WEND
 WINDOW 2
 CLS
 MOVETO 20,20:PRINT"You destroyed    ";score;" enemy mines."
 MOVETO 20,40:PRINT "Do you want to try again, Captain?"
 FOR i=1 TO 10:SOUND 800,1:SOUND 600,1:NEXT i
 BUTTON 1,1,"OK",(250,50)-(300,74)
 BUTTON 2,1,"QUIT",(310,50)-(360,74)
 WHILE DIALOG(0)<>1:WEND
 BUTTON CLOSE 1:BUTTON CLOSE 2
 CLS
 GOSUB statusinit
 WINDOW 1
 IF DIALOG(1)=1 THEN mloop0
 MENU RESET
 STOP
'--------------------------------------
' Make sonar sound
'--------------------------------------
makesound:
SOUND 1000-(2*sypos),3
RETURN
'--------------------------------------
' Update enemy position
'--------------------------------------
udatemy:
 delx=sxpos-expos:dely=sypos-eypos
 vye=vye+SGN(dely-30*(ABS(delx)>50))
 IF vye<-4 THEN vye=-4! ELSE IF vye>4 THEN vye=4
 ex=expos+SGN(delx)*(score+1)
 ey=eypos+vye
 IF ey<50 THEN ey=50:vye=0! ELSE IF ey>190 THEN ey=190:vye=-40
  PUT(expos,eypos),e:PUT(ex,ey),e
 eypos=ey:expos=ex
 IF ABS(delx)>30 OR ABS(dely)>10 THEN RETURN

' Enemy touched the user submarine

 GOSUB kilenmy
 ON 2*RND GOTO udate0,udate1
 balwrk=false:GOTO udate1
udate0:
 torwrk=false
udate1:
 hulst=hulst+10*(hulst>9)
 engeff=engeff+10*(engeff>9)
 GOSUB distat
RETURN
'--------------------------------------
' Update the submarine position
'--------------------------------------
udatsub:
 xvel=xvel+engn-SGN(xvel)
 IF xvel>20 THEN xvel=20
 IF xvel<-20 THEN xvel=-20
 sx=sxpos+xvel/5
 sy=sypos+balst+dive*xvel/15
 IF sx<-46 THEN sx=505! ELSE IF sx>505 THEN sx=-46
 IF sy>190 THEN sy=sypos
```

(continues on page 130)

Sonar Sub Code

If you make a mistake typing in this listing, MBASIC lets you know. When you run the program and it encounters an error, an error message is displayed in a dialog box and the line containing the error is indicated in the List window.

Sonar Sub Code
(continued from page 129)

```
  IF sy>50 THEN udatsub1
    sy=50
    air=air-(air<1000)
    battery=battery-(battery<1000)
    GOSUB shortstat
    GOTO udatsub2
udatsub1:
  battery= battery-ABS(engn)*100/engeff
  IF battery>=0 THEN udatsub2
    engn=0:battery=0
    msg$="Our batteries need recharging, Captain!          "
    MENU 2,menustate(2),1
    menustate(2)=3
    MENU 2,menustate(2),2
    GOSUB message
udatsub2:
  IF (sxpos=sx) AND (sypos=sy) THEN RETURN
    PUT (sxpos,sypos),s
    PUT(sx,sy),s
    sxpos=sx: sypos=sy
RETURN
'-------------------------------------
' Update torpedo position
'-------------------------------------
udatorp:
  tindx=1-tindx*(tindx<16)
  IF tsavx(tindx)<0 THEN torp=0:RETURN
  i=33+(POINT(tsavx(tindx),ty)=33)*3
  PSET(tsavx(tindx),ty),i
  tx=tx-7
  tsavx(tindx)=tx
  i=33+(POINT(tx,ty)=33)*3
  PSET(tx,ty),i
    PUT(tx-3,ty-2),t:PUT(tx-10,ty-2),t

' Check for coincidence with enemy

  IF ABS(tx-expos-15)>20 OR ABS(ty-eypos-3)>10 THEN RETURN

' Erase the torpedo

  PUT(tx-10,ty-2),t
  FOR i=1 TO 16
    j=33+(POINT(tsavx(i),ty)=33)*3
    PSET(tsavx(i),ty),j
  NEXT i
  torp=false
  GOSUB kilenmy  ' destroy the enemy
  score=score+1
  GOSUB distat
RETURN
'-------------------------------------
' Destroy the enemy
'-------------------------------------
kilenmy:
  PUT(expos,eypos),e
  FOR i=1 TO 2:FOR j=0 TO 80 STEP 4
     PUT(expos-j,eypos-j)-(expos+40+j,eypos+10+j),e
     SOUND 30*i+j MOD 20,1,255
     NEXT j:NEXT i
  expos=555+605*(RND<.5)
   msg$="Sonar indicates enemy to our right."
  IF expos<250 THEN msg$="Sonar indicates enemy to our left."
  GOSUB message
RETURN
'-------------------------------------
' Update submarine conditions
'-------------------------------------
udatcond:
  IF air<=0 OR hulst*4<sypos THEN alive=0
  IF sypos<=50 THEN RETURN
    air=air+10*(air>0)
    GOSUB shortstat
RETURN
'*********************************
' Service user interaction with menu
'*********************************
udatm:
  menuid=MENU(0)
  itemid=MENU(1)
  MENU menuid,0,1
  IF menuid>3 THEN udatm0
    MENU menuid,menustate(menuid),1
    MENU menuid,itemid,2
    menustate(menuid)=itemid
udatm0:
  ON menuid GOTO ballast,engine,diving,fire,repair,sos
RETURN
```

```
'---------------------------------
' Set new ballast tank level
'---------------------------------
ballast:
 IF balwrk THEN balst=itemid-3:RETURN
 MENU menuid,itemid,1
 menustate(menuid)=balst+3
 MENU menuid,menustate(menuid),2
 msg$="The ballast tank is broken Captain!"
 GOSUB message
RETURN
'---------------------------------
' Set new engine speed
'---------------------------------
engine:
 engn=2*itemid-6
 RETURN
'---------------------------------
' Set new diving plane level
'---------------------------------
diving:
 dive=3-itemid
 RETURN
'---------------------------------
' Fire a torpedo
'---------------------------------
fire:
 IF torwrk THEN fire0
   msg$="The torpedo tube is broken, Captain!"
   GOSUB message
  RETURN
fire0:
 IF torp THEN RETURN 'exit if torpedo already exists
 ty=sypos+9
 tx=sxpos
 FOR i=1 TO 16:tsavx(i)=tx:NEXT i
 torp=true
 PUT(tx-10,ty-2),t
 FOR i=2000 TO 1000 STEP -100:SOUND i,1:NEXT i:
 RETURN
'---------------------------------
' Conduct repairs of the sub
'---------------------------------
repair:
 ON itemid GOTO rephul,repeng,reptor,repbal

' Repair the hull

rephul:
 hulst=100:GOSUB distat:RETURN

' Repair the engine

repeng:
 engeff=100:GOSUB distat:RETURN

' Repair the torpedo tube

reptor:
 torwrk=true:GOSUB distat:RETURN

' Repair the ballast tank

repbal:
 balwrk=true:GOSUB distat:RETURN
'-------------------------------------
' SOS - stop and reset
'-------------------------------------
sos:
 IF itemid=1 THEN MENU RESET:STOP
  RETURN
'-------------------------------------
' Display the game status
'-------------------------------------
statusinit:
  WINDOW OUTPUT 2
     MOVETO 10,40:PRINT"Engine efficiency:"
     MOVETO 10,55:PRINT"Hull strength:"
     MOVETO 10,70:PRINT"Battery power left:"
     MOVETO 10,85:PRINT"Score:"
     MOVETO 250,40:PRINT"Air left:"
     MOVETO 250,55:PRINT"Torpedo tube     works"
     MOVETO 250,70:PRINT"Ballast tank     works";
     GOSUB distat
  WINDOW OUTPUT 1
RETURN
```

(continues on page 132)

Sonar Sub Code
(continued from page 131)

```
distat:
  WINDOW OUTPUT 2
  MOVETO 150,40:PRINT engeff
  MOVETO 150,55:PRINT hulst
  MOVETO 150,70:PRINT battery
  MOVETO 350,40:PRINT air
  MOVETO 350,55
  IF torwrk THEN PRINT "works      " ELSE PRINT"broken"
  MOVETO 350,70
  IF balwrk THEN PRINT "works      " ELSE PRINT "broken"
  MOVETO 150,85 :PRINT score;
  WINDOW OUTPUT 1
 RETURN

shortstat:
  WINDOW OUTPUT 2
  MOVETO 350,40:PRINT air
  MOVETO 150,70:PRINT battery
  WINDOW OUTPUT 1
RETURN
'---------------------------------------
' Print a message to the screen
'---------------------------------------
message:
 WINDOW OUTPUT 2
  CALL MOVETO (10,15):PRINT msg$;
  SOUND 400,3:SOUND 600,5
  GOSUB distat
 WINDOW OUTPUT 1
RETURN
'---------------------------------------
' Initialize the system to start another game
'---------------------------------------
initgam:
   FOR i=1 TO 3
   MENU i,menustate(i),1
   menustate(i)=3
   MENU i,menustate(i),2
 NEXT i
 true=-1:false=0
 alive=true:twobtn=false
 sxpos=50:sypos=50
 score=0:engn=0
 vye=0:expos=-50:eypos=200
 hulst=100:engeff=100:battery=500
 air=500:torwrk=true:balwrk=true
 torp=false:mnuflg=false
 CLS
 LINE(0,55)-(520,55)
 PUT(sxpos,sypos),s
 GOSUB distat
RETURN
'---------------------------------------
'  Initialize the system to begin game
'---------------------------------------
initsys:
DEFINT a-z
DIM s(90),t(16),e(40),tsavx(16)
DIM winsav(1740),menustate(3)
 MENU 1,0,1,"Ballast"
  MENU 1,1,1,"full up"
  MENU 1,2,1,"half up"
  MENU 1,3,2,"level"
  MENU 1,4,1,"half down"
  MENU 1,5,1,"full down"
 MENU 2,0,1,"Engines"
  MENU 2,1,1,"full forward"
  MENU 2,2,1,"half forward"
  MENU 2,3,2,"all stop"
  MENU 2,4,1,"half reverse"
  MENU 2,5,1,"full reverse"
 MENU 3,0,1,"Diving Planes"
```

```
  MENU 3,1,1,"full up"
  MENU 3,2,1,"half up"
  MENU 3,3,2,"level"
  MENU 3,4,1,"half down"
  MENU 3,5,1,"full down"
MENU 4,0,1,"Torpedo"
  MENU 4,1,1,"fire"
MENU 5,0,1,"Repairs"
  MENU 5,1,1,"fix hull"
  MENU 5,2,1,"fix engines"
  MENU 5,3,1,"fix torpedo tube"
  MENU 5,4,1,"fix ballast tank"
MENU 6,0,1,"SOS"
  MENU 6,1,1,"STOP:Reset Menu"

WINDOW 2,,(10,235)-(492,340),3
WINDOW 1,,(0,20)-(520,228),3
GOSUB statusinit

' Draw sub image & put the bit map in s array

CLS
  CIRCLE(25,0),43,,1.21,1.93
  CIRCLE(25,80),43,,4.35,5.1
  LINE(10,40)-(3,35)
  LINE(3,35)-(40,35)
  LINE(40,35)-(40,37)
  LINE(40,37)-(45,37)
  LINE(45,37)-(53,33)
  LINE(53,33)-(50,38)
  LINE(50,38)-(53,43)
  LINE(53,43)-(47,40)
  LINE(47,40)-(40,40)
  LINE(20,35)-(20,28)
  LINE(20,28)-(25,28)
  LINE(25,28)-(28,35)
  LINE(22,30)-(27,30)
GET(3,28)-(53,45),s
PUT(3,28),s

' Draw torpedo & put the bit map in t array

CLS
LINE(0,2)-(3,0)
LINE(3,0)-(10,0)
LINE(10,0)-(10,4)
LINE(10,4)-(3,4)
LINE(3,4)-(0,2)
LINE(8,0)-(10,2)
LINE(10,2)-(8,4)
GET(0,0)-(10,4),t

' Draw enemy & save bit map in e array

CLS
CIRCLE(20,16),13,,4.03,5.4
LINE(0,6)-(6,4)
LINE(6,4)-(8,4)
LINE(8,4)-(10,6)
LINE(10,6)-(30,6)
LINE(30,6)-(32,4)
LINE(32,4)-(34,4)
LINE(34,4)-(40,6)
LINE(40,6)-(40,8)
LINE(40,8)-(0,8)
LINE(0,8)-(0,6)
LINE(4,8)-(6,10)
LINE(6,10)-(34,10)
LINE(34,10)-(36,8)
LINE(11,2)-(13,5)
LINE(15,0)-(16,4)
LINE(20,0)-(20,3)
LINE(25,0)-(24,4)
LINE(29,2)-(27,5)
GET(0,0)-(40,10),e
RETURN
```

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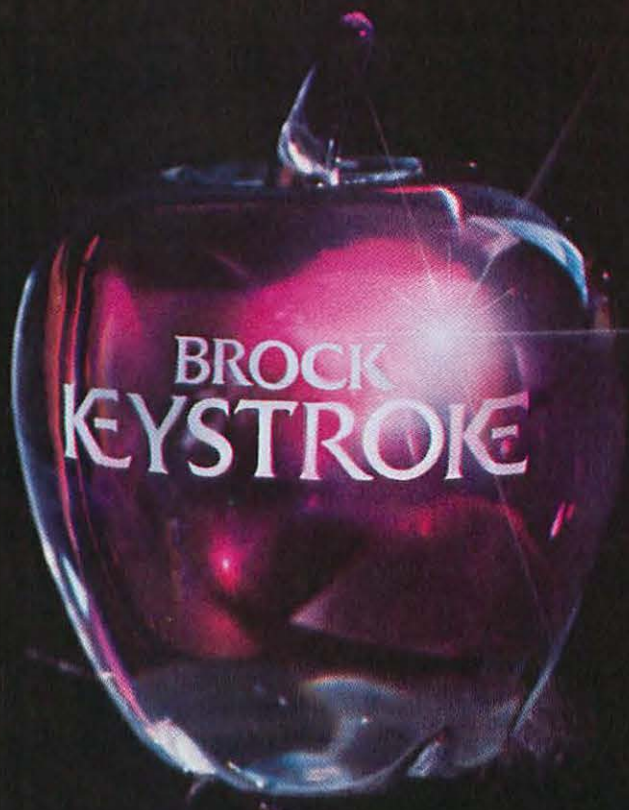
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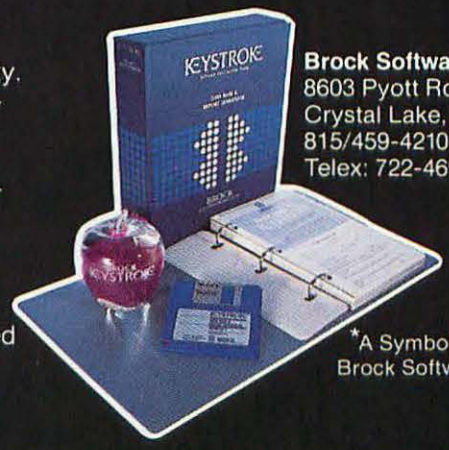


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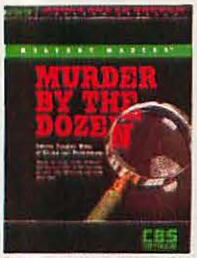
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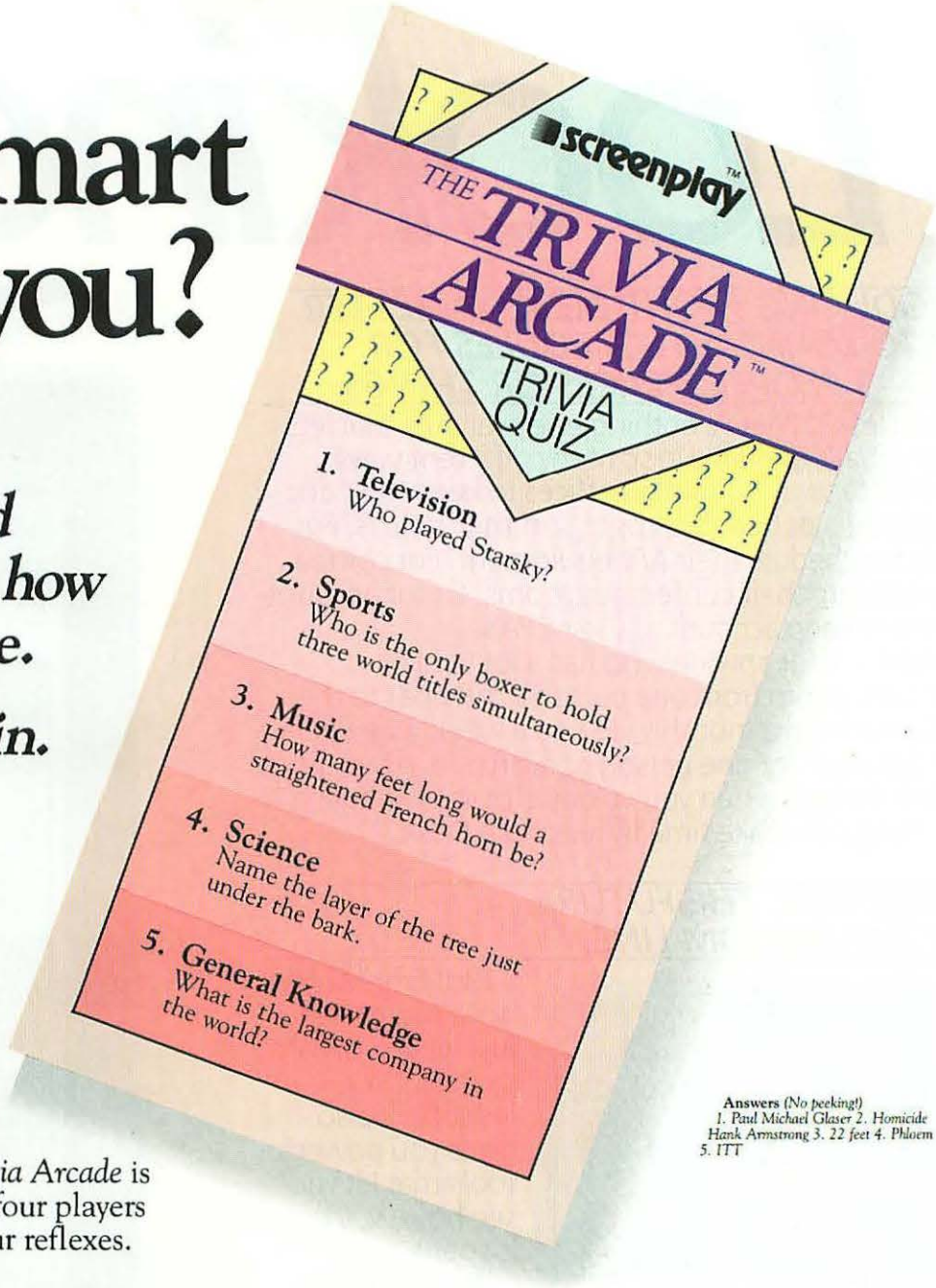
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Answers *(No peeking!)*
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INTRODUCING FRONT DESK!™ A BETTER WAY TO MAINTAIN SCHEDULES FOR UP TO 15 PEOPLE, PLACES OR THINGS.

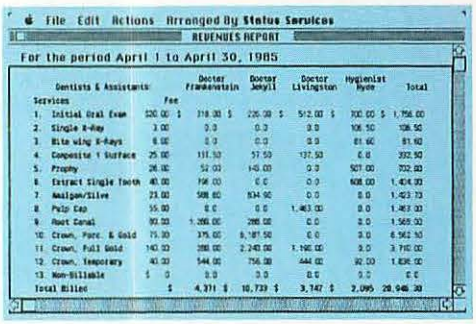
Front Desk!™ There's nothing else available that lets you see what's available in so many different ways.

It's a better way for dentist offices to keep their doctors ordered. For health clubs to sort their courts. For schools to schedule their A/V equipment. For companies to allocate their conference rooms. Or for accounting firms to keep account of their CPA's.

In short, it's for anyone who has a lot to allot.

It lets you zoom from one person's calendar to the next. Or zip from a monthly view to a weekly view to a single day view for one person or everyone. All as quick as a click. In fact, when you've got a lot of scheduling to do, nothing can make time fly like Front Desk.

SEE THE PAST. THE FUTURE. AND THE BOTTOM LINE.


File Edit Actions Arranged By Status Services

REVENUES REPORT

For the period April 1 to April 30, 1985

Dentists & Assistants: Services	Fee	Doctor Frankenstein	Doctor Jekyll	Doctor Livingston	Hygienist Hyde	Total
1. Initial Oral Exam	120.00	$ 318.00	$ 225.00	$ 512.00	$ 700.00	$ 1,756.00
2. Single X-Ray	3.00	0.0	0.0	0.0	106.50	106.50
3. Bite wing X-Rays	6.00	0.0	0.0	0.0	81.60	81.60
4. Composite 1 Surface	25.00	137.50	57.50	137.50	0.0	332.50
5. Prophy	26.00	52.00	145.00	0.0	507.00	702.00
6. Extract Single Tooth	40.00	156.00	0.0	0.0	608.00	1,404.00
7. Amalgam/Silve	23.00	598.00	834.90	0.0	0.0	1,423.73
8. Pulp Cap	55.00	0.0	0.0	1,463.00	0.0	1,463.00
9. Root Canal	90.00	1,266.00	299.00	0.0	0.0	1,565.00
10. Crown, Porc. & Gold	75.00	375.00	5,187.50	0.0	0.0	6,562.50
11. Crown, Full Gold	140.00	280.00	2,240.00	1,120.00	0.0	3,710.00
12. Crown, Temporary	40.00	544.00	756.00	644.00	92.00	1,836.00
13. Non-Billable	$ 0	0.0	0.0	0.0	0.0	0.0
Total Billed		$ 4,371	$ 10,739	$ 3,147	$ 2,095	20,946.30

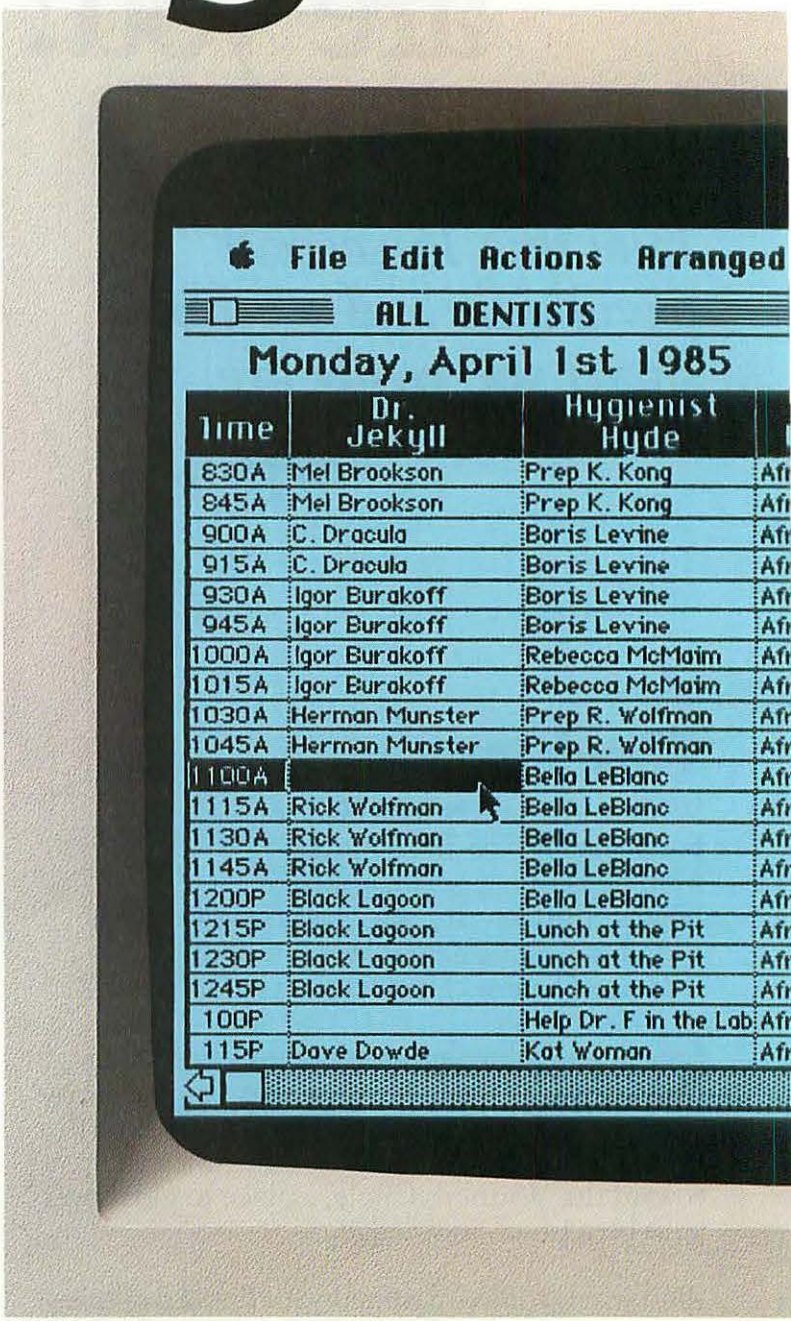
But Front Desk does more than just let you organize how time is spent. It also gives you powerful tools that let you see how *well* time is spent.

It remembers what services are performed by each staff member during any particular time period.

So in the click of a mouse you can create a report for last month showing how many hours each dentist in your office spent—or how many dollars they brought in—by cleaning teeth, or filling cavities, or whatever. And you can project how much money each dentist will bring in on those services in the next two weeks or two months. This not only helps you improve the way your cash flows, it helps you make more of it.

LET THE GOOD TIMES SCROLL.

Whether you're scheduling activities for an architect, or engagements for an engineer, a flick of your finger will call up that person's full day calendar, which is preset in whatever time intervals you choose. Use the side scroll bar to view the entire day's schedule. Or the bottom scroll bar to see the previous or next day.

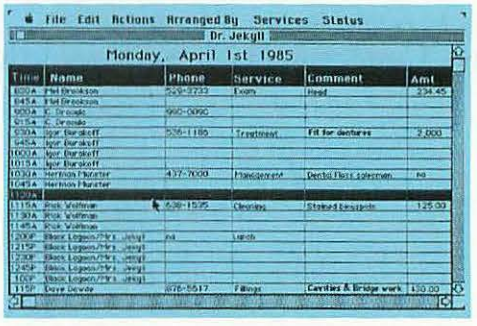

File Edit Actions Arranged

ALL DENTISTS

Monday, April 1st 1985

Time	Dr. Jekyll	Hygienist Hyde
830A	Mel Brookson	Prep K. Kong
845A	Mel Brookson	Prep K. Kong
900A	C. Dracula	Boris Levine
915A	C. Dracula	Boris Levine
930A	Igor Burakoff	Boris Levine
945A	Igor Burakoff	Boris Levine
1000A	Igor Burakoff	Rebecca McMaim
1015A	Igor Burakoff	Rebecca McMaim
1030A	Herman Munster	Prep R. Wolfman
1045A	Herman Munster	Prep R. Wolfman
1100A		Bella LeBlanc
1115A	Rick Wolfman	Bella LeBlanc
1130A	Rick Wolfman	Bella LeBlanc
1145A	Rick Wolfman	Bella LeBlanc
1200P	Black Lagoon	Bella LeBlanc
1215P	Black Lagoon	Lunch at the Pit
1230P	Black Lagoon	Lunch at the Pit
1245P	Black Lagoon	Lunch at the Pit
100P		Help Dr. F in the Lab
115P	Dave Dowde	Kat Woman

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File Edit Actions Arranged By Services Status

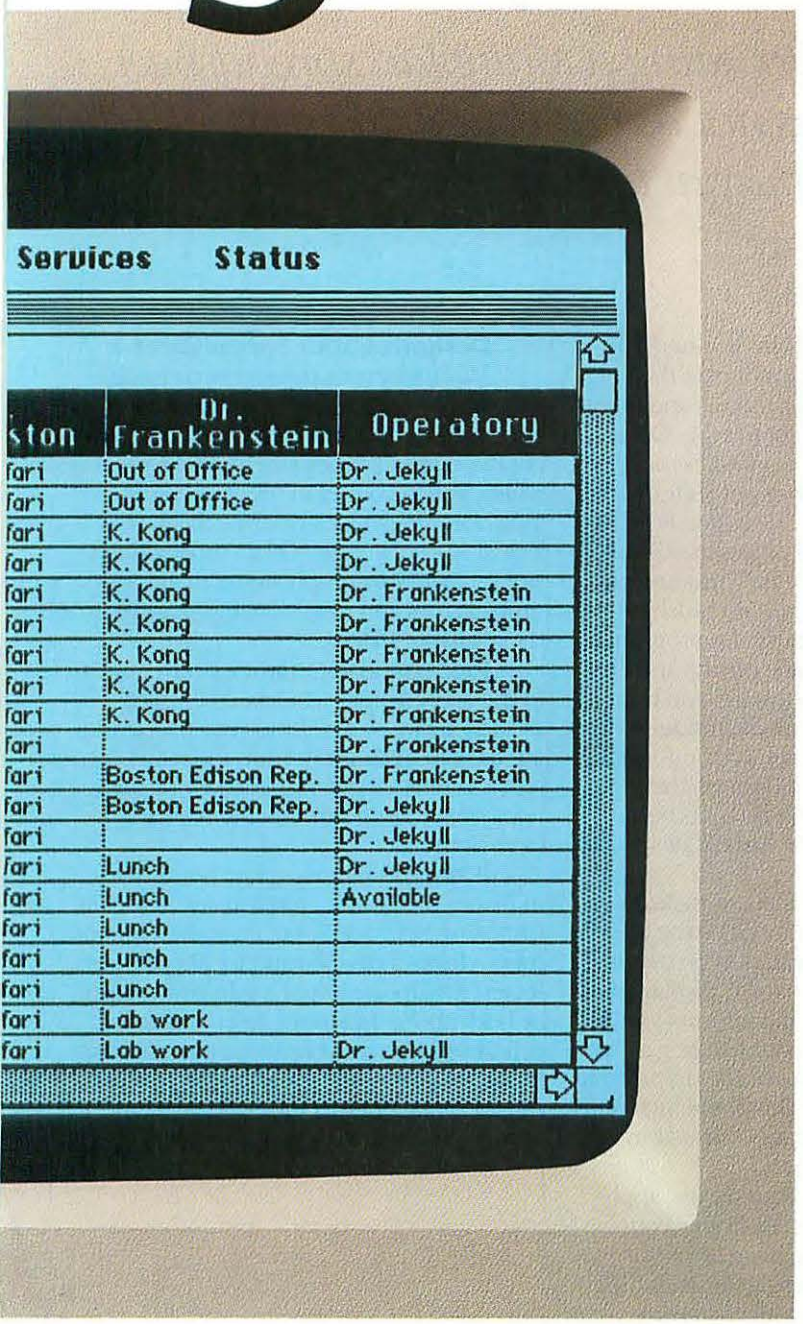
Dr. Jekyll

Monday, April 1st 1985

Time	Name	Phone	Service	Comment	Amt
830A	Mel Brookson	549-2733	Exam	Head	234.45
845A	Mel Brookson				
900A	C. Dracula	990-0090			
915A	C. Dracula				
930A	Igor Burakoff	536-1185	Treatment	Fit for dentures	2,000
945A	Igor Burakoff				
1000A	Igor Burakoff				
1015A	Igor Burakoff				
1030A	Herman Munster	437-7000	Management	Dental floss salesman	no
1045A	Herman Munster				
1100A					
1115A	Rick Wolfman	638-1575	Cleaning	Stained Dentures	125.00
1130A	Rick Wolfman				
1145A	Rick Wolfman				
200P	Black Lagoon/Mrs. Jekyll	no	Lunch		
215P	Black Lagoon/Mrs. Jekyll				
230P	Black Lagoon/Mrs. Jekyll				
245P	Black Lagoon/Mrs. Jekyll				
100P	Black Lagoon/Mrs. Jekyll				
115P	Dave Dowde	876-5517	Fillings	Cavities & Bridge work	130.00

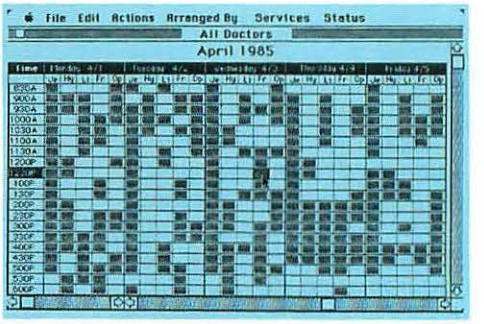
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a good time?



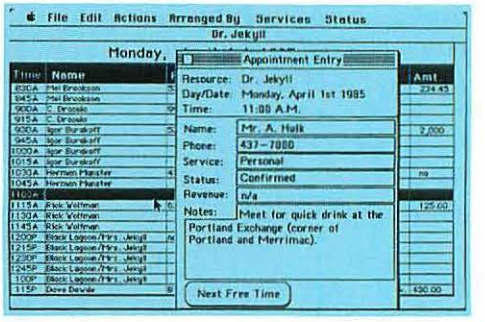
amazing is that when someone tells you "I'm only available on Tuesdays," a single view of all Tuesdays in April is just a click away.

GET THE BIG PICTURE.



Front Desk not only lets you select the calendar of any one particular dentist, racquetball court, or company fleet car, it lets you select a composite view of every schedule. By scanning the columns under the initials you can spot every available opening in an instant. And because you can see everyone's calendars in one view, scheduling internal meetings is a snap.

HOW TO PUT PEOPLE IN THEIR PLACE.

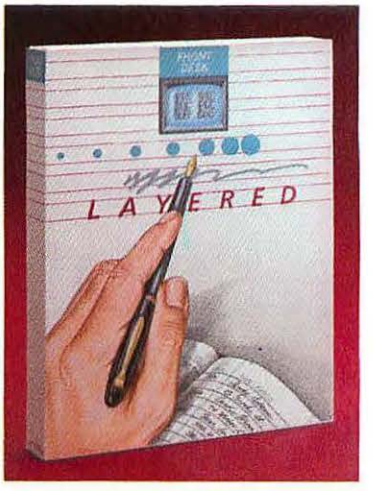


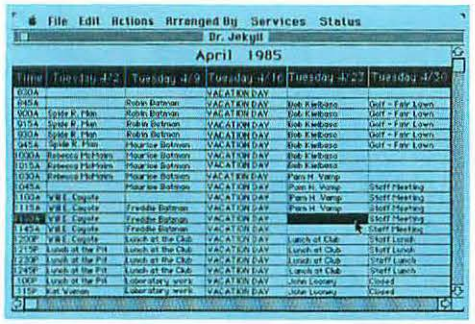
Once you find an open time slot, double-click to call up an appointment entry form. Fill it in, click save and the information is recorded on the calendar. Plus you can cut or copy and paste information from any time slot to rearrange schedules in seconds. And print out copies of any view of any calendar at any time.

DON'T WASTE ANOTHER DAY.

Cancel your next appointment and rush down to your computer store.

And tell them you're looking for a good time.





SEE A MONTH OF SUNDAYS.

Tap your mouse and Front Desk will put a whole week of appointments on the screen at once. But what's really

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Spreadsheets Printed in Style

Printing a Multiplan spreadsheet is not as cut-and-dried as it may at first seem

Lon Poole

Multiplan *is a spreadsheet program used for bookkeeping, preparing budgets and sales projections, financial analysis, and record keeping. The program adds the dynamic power of a microcomputer to the static design of a manual spreadsheet, so that formulas and functions can be entered into the cells. You can construct tables that model the relationships between elements on the spreadsheet, and the computer will recalculate the worksheet whenever information is entered or changed.*

If you work with *Multiplan,* you undoubtedly know that typing numbers in the spreadsheet's rows and columns and doing calculations is only part of the job. Once you have finished your work on screen, you probably want to print out your document on paper. When you choose Print from the File menu, the program's default format lays out the rows and columns on U.S. letter-size paper. If the spreadsheet requires more than one page, the program automatically inserts page breaks and creates margins—1 inch on the top and bottom of the page and ¾ inch on each side. Aside from these enhancements, your information looks the same as it does on the screen, with row and column numbers, grid lines, and text in the same font style as the screen's.

Printing your spreadsheet in *Multiplan*'s default format may not be the best way to present the information on paper, however. Most people want to display their information in a way that conforms to the business report styles to which they are accustomed. To give you flexibility in printing your work, *Multiplan*'s designers included several alternatives that let you customize your printed spreadsheets.

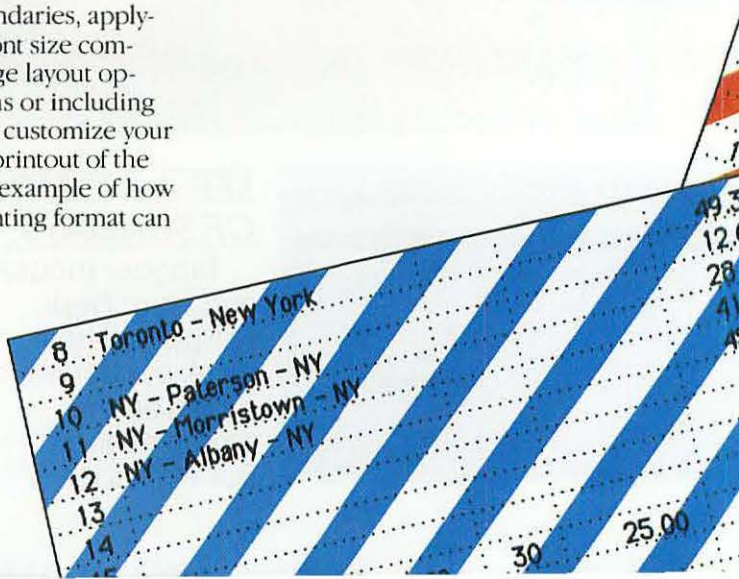
By adjusting page boundaries, applying either of two font and font size combinations, and choosing page layout options such as setting margins or including headers or footers, you can customize your printed spreadsheets. The printout of the worksheet in Figure 1 is an example of how the standard *Multiplan* printing format can be modified.

Designing Your Spreadsheet

Multiplan uses three criteria to decide where to place page boundaries: paper size, margin, and column width. The combination of paper size and margin width, which you set in the Page Setup dialog box, determines how much space is available on the page. Given those dimensions, *Multiplan* simply fits as many columns across and rows down as possible in the available space.

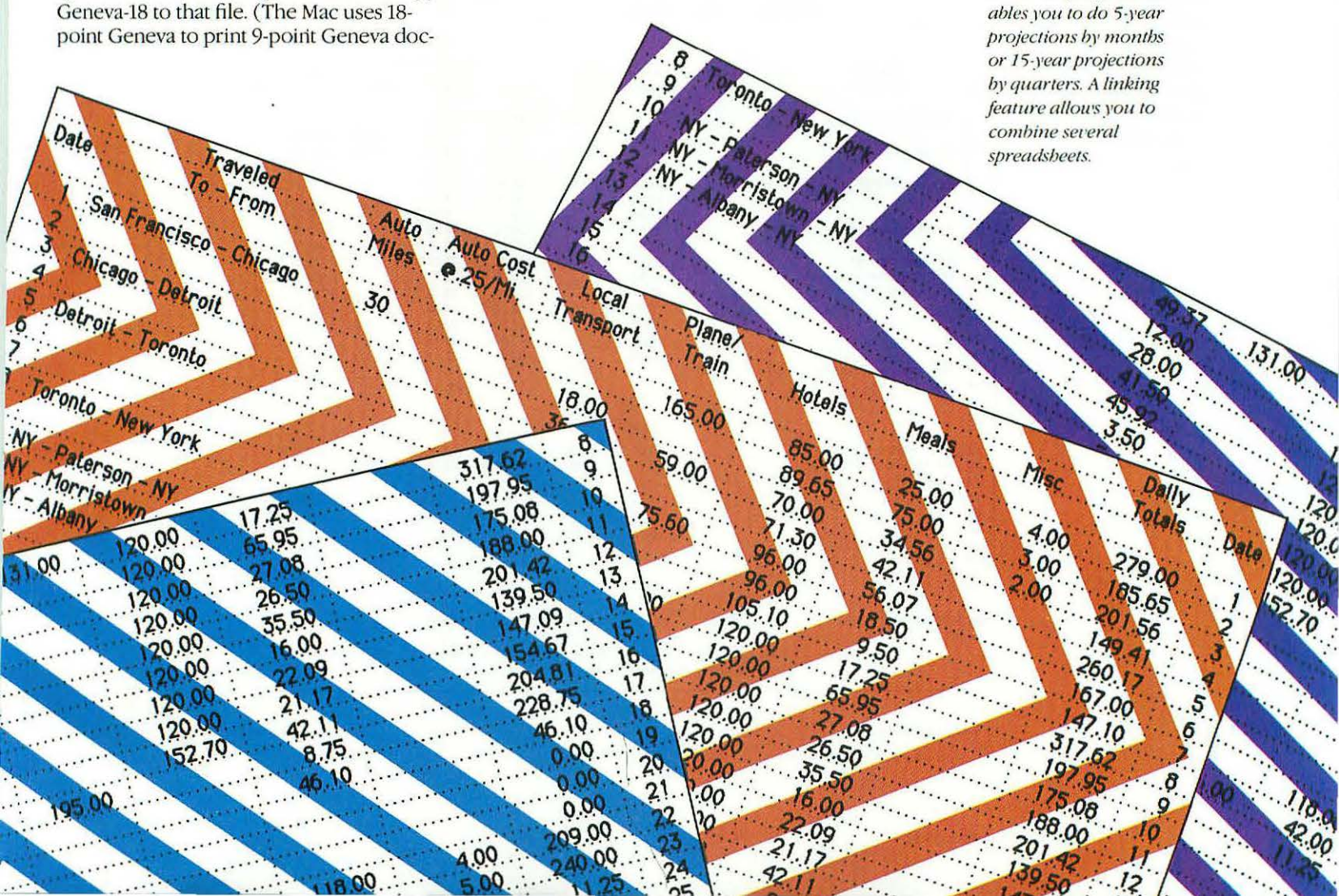
Page boundaries automatically appear in the spreadsheet window as lines of dashes between rows and columns; these are easy to distinguish from the usual dotted grid lines. You can spot these dashed lines by scrolling through the worksheet (see Figure 2).

If *Multiplan* draws page boundaries in places you dislike, you can set your own. Choosing Set Page Break from the Options menu draws a page boundary above a selected row, to the left of a selected column, or both above and to the left of a selected cell. If you change your mind about a page break you set, select the same row, column, or cell again, but this time choose Remove Page Break from the Options menu.



At first glance it might seem that all *Multiplan* spreadsheets must print out in 10-point plain Seattle the way they appear on the screen. After all, *Multiplan* has no font, font size, or style menus for changing text style. But one alternative font exists. With the help of the Font Mover utility, you can convert *Multiplan*'s font from 10-point Seattle to 9-point Geneva. All you do is remove Seattle-10 and Seattle-20 from the System file on the *Multiplan* disk and copy Geneva-18 to that file. (The Mac uses 18-point Geneva to print 9-point Geneva documents in high resolution.) Here are step-by-step instructions for changing the font:

- Initialize a new disk or erase an existing disk to become your 9-point Geneva *Multiplan* disk.
- From the System disk, copy the System Folder and the Font Mover application to the new disk. Use a System Folder that contains version 1.1 of the Finder, together



Multiplan *has 16,065 cells arranged in 63 columns and 256 rows. The program enables you to do 5-year projections by months or 15-year projections by quarters. A linking feature allows you to combine several spreadsheets.*

with the System file, Imagewriter file, Note Pad file, Scrapbook file, and Clipboard file.

- From the *Multiplan* Master disk, copy the *Multiplan* application icon and the Multiplan.Help icon.
- Open the Font Mover application on the new disk.
- Remove all fonts from the System file except Geneva-18 and the four fonts marked with asterisks: Chicago-12, Geneva-9, Geneva-12, and Monaco-9.
- Quit the Font Mover application.
- Optionally, drag the Font Mover from the *Multiplan* disk to the Trash to make more room on your new *Multiplan* disk.

When *Multiplan* is signaled that the 10-point Seattle font is missing, it has the Mac substitute the 9-point Geneva font. The result is a spreadsheet with smaller type and more columns and rows in the spreadsheet window. A standard empty worksheet window shows 15 rows by 6 columns using 10-point Seattle, or 20 rows by 7 columns using 9-point Geneva. The same proportions apply when you are printing a spreadsheet, so you can get more columns across and more rows down a page with 9-point Geneva (see Figure 3).

You can use the 9-point Geneva version of *Multiplan* with new and existing spreadsheets. When you open an existing worksheet, however, *Multiplan* maintains its original column width in inches. Thus, you will see the same number of columns across the window using 9-point Geneva as you originally had using 10-point Seattle. The characters are smaller, but the columns are not.

To get maximum benefit from the smaller font size, you have to reduce the width of each existing column. To make a column narrower, position the pointer on the column boundary in the column header area and drag the boundary to the left. Or select a column, choose Column Width from the Format menu, and specify a smaller column width in the dialog box that appears.

Figure 1
This custom-formatted worksheet shows the space savings you can achieve in a spreadsheet printed on letter-size paper in Tall orientation. By adjusting the page boundaries and margins, using a 9-point font size, and setting narrower column widths, you can maximize the amount of information on the page.

Leroy Philpotts — TRAVEL AND ENTERTAINMENT REPORT — October 1984

			Due Company	Due Me						
		Last Month's Balance	0.00	76.00						
		Reimbursement	76.00	0.00						
		Cash Advance	3000.00							
		Transportation Advance	677.98							
		Month's Expenses		3851.13						
		Totals	3753.98	3927.13						
		Amount Due	0.00	173.15						

Date	Traveled To - From	Auto Miles	Auto Cost @.25/Mi.	Local Transport	Plane/ Train	Hotels	Meals	Misc.	Daily Totals	Date
1	San Francisco - Chicago	30			165.00	85.00	25.00	4.00	279.00	1
2				18.00		89.65	75.00	3.00	185.65	2
3	Chicago - Detroit			36.00	59.00	70.00	34.56	2.00	201.56	3
4				36.00		71.30	42.11		149.41	4
5	Detroit - Toronto			32.50	75.60	96.00	56.07		260.17	5
6				52.50		96.00	18.50		167.00	6
7				32.50		105.10	9.50		147.10	7
8	Toronto - New York			49.37	131.00	120.00	17.25		317.62	8
9				12.00		120.00	65.95		197.95	9
10	NY - Paterson - NY			28.00		120.00	27.08		175.08	10
11	NY - Morristown - NY			41.50		120.00	26.50		188.00	11
12	NY - Albany - NY			45.92		120.00	35.50		201.42	12
13				3.50		120.00	16.00		139.50	13
14				5.00		120.00	22.09		147.09	14
15				13.50		120.00	21.17		154.67	15
16				10.00		152.70	42.11		204.81	16
17	New York - San Francisco	30	25.00		195.00		8.75		228.75	17
18		8					46.10		46.10	18
19									0.00	19
20									0.00	20
21									0.00	21
22	San Francisco - Los Angeles			28.00	59.00		118.00	4.00	209.00	22
23	Los Angeles - San Francisco			28.00	59.00	106.00	42.00	5.00	240.00	23
24	Cupertino	120					11.25		11.25	24
25									0.00	25
26									0.00	26
27									0.00	27
28									0.00	28
29									0.00	29
30									0.00	30
31									0.00	31
MONTH TOTALS =>		188	25.00	472.29	743.60	1831.75	760.49	18.00	3851.13	

	Auto Miles	Auto Cost @.25/Mi.	Local Transport	Plane/ Train	Hotels	Meals	Misc	Daily Totals

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Custom-Fitting Your Spreadsheet

Multiplan adjusts the page boundaries of a spreadsheet automatically so that you can fit your information on any of four sizes of paper. The table labeled "Paper Size" identifies the possibilities. To prepare for printing, choose Page Setup from the File menu. A dialog box appears, showing several page layout options (see Figure 4). The options include the size of the paper, the orientation of the spreadsheet on the page, whether to print grid lines and row and column numbers, the text of one-line headers and footers, and margin settings. You have to set the options only once for a spreadsheet, because *Multiplan* saves them on disk along with the spreadsheet.

Tall orientation gives you normal upright printing, with the top line of the spreadsheet appearing at the top of the page. The worksheet in Figure 1 is printed in Tall orientation. In contrast, Wide orientation results in sideways printing, which is useful when you want to show many columns across a page instead of many rows up and down. In *Multiplan,* Tall Adjusted orientation produces the same result as Tall.

Multiplan can print headers and footers in the top and bottom margins of every page. Whatever you type in the Page Header entry box appears centered ½ inch from the top of every printed page. Similarly, the contents of the Page Footer entry box are printed centered ½ inch from the bottom edge of every page.

You may not be able to see a long header or footer all at once in its entry box, but you can use the I-beam pointer to scroll the text left or right within the entry box. Simply place the pointer anywhere over the header text, press the mouse button, and drag the pointer to either end of the entry box. When the pointer reaches the end of the box, the running head text starts to scroll slowly in the opposite direction. The further you move the pointer from the edge of the entry box, the faster the text scrolls. Headers and footers can include special commands that mark a position for the date, time, or page number.

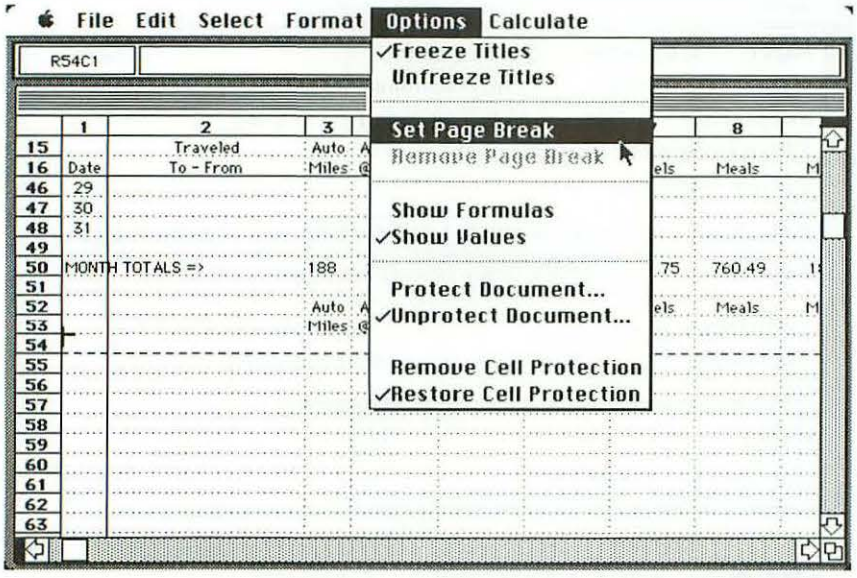


Figure 2
The lines of dashes indicate the page boundaries. You can change the page boundaries by selecting the row, column, or cell where you want to break the page and choosing Set Page Break from the Options menu.

	1	2	3
15		Traveled	Auto
16	Date	To - From	Miles
17			
18	1	San Francisco - Chicago	30
19	2		
20	3	Chicago - Detroit	
21	4		
22	5	Detroit - Toronto	
23	6		
24	7		
25	8	Toronto - New York	
26	9		
27	10	NY - Paterson - NY	
28	11	NY - Morristown - NY	
29	12	NY - Albany - NY	

	1	2	3
15		Traveled	Auto
16	Date	To - From	Miles
17			
18	1	San Francisco - Chicago	30
19	2		
20	3	Chicago - Detroit	
21	4		
22	5	Detroit - Toronto	
23	6		
24	7		
25	8	Toronto - New York	
26	9		
27	10	NY - Paterson - NY	
28	11	NY - Morristown - NY	
29	12	NY - Albany - NY	

Figure 3
This figure shows the difference between a standard spreadsheet that uses 10-point Seattle and one that uses 9-point Geneva. To create a worksheet with more columns and rows, you need to use the Font Mover utility to substitute Geneva for Seattle.

Multiplan replaces the markers with the actual date, time, and page number when it prints the spreadsheet. You can embed other commands that align parts of a header at the left edge, right edge, or center of the page. The table labeled "Command Codes" lists the commands.

The normal *Multiplan* top and bottom margins are each 1 inch high. The standard left and right margins are each ¾ of an inch wide. On an 8½- by 11-inch sheet of paper, the standard margins leave a 7- by 9-inch space for spreadsheet rows and columns. If you enlarge the margins, you reduce the number of rows or columns on a page. If you shrink the margins, you increase the number of rows or columns on a page.

Rarely do the preset margins exactly fit the spreadsheet. Usually a page-sized piece of the worksheet is narrower than the space allowed by the side margins. In that case, *Multiplan* automatically widens both margins by the same amount, centering the spreadsheet between them. The headers also do not use the side margins specified in the Page Setup dialog box. Header margins are always at least ¼ inch narrower, making the running head lines at least ½ inch wider than the spreadsheet. However, you can still type more text than will fit in the available header or footer space. In that case, *Multiplan* prints the center text 8 inches wide, lopping off an equal amount from the beginning and the end of the running head. To make sure you don't lose characters from the ends of your headers and footers, keep the text short enough to fit inside the margins.

Printing with a Flair

When you choose Print from the File menu, a dialog box appears (see Figure 5). The box gives you a choice of print quality and lets you specify the part of the spread-

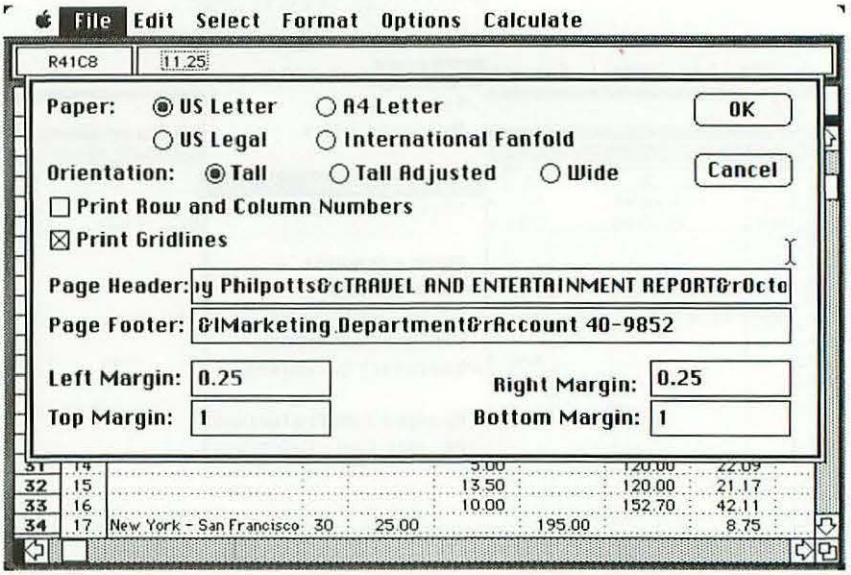


Figure 4
The Page Setup dialog box lets you control the appearance of printed spreadsheets. The left margins have been reset to ¼ inch from the normal ¾-inch setting. You need only set the printing format for a worksheet once, because Multiplan *saves the page setup information on disk with the document.*

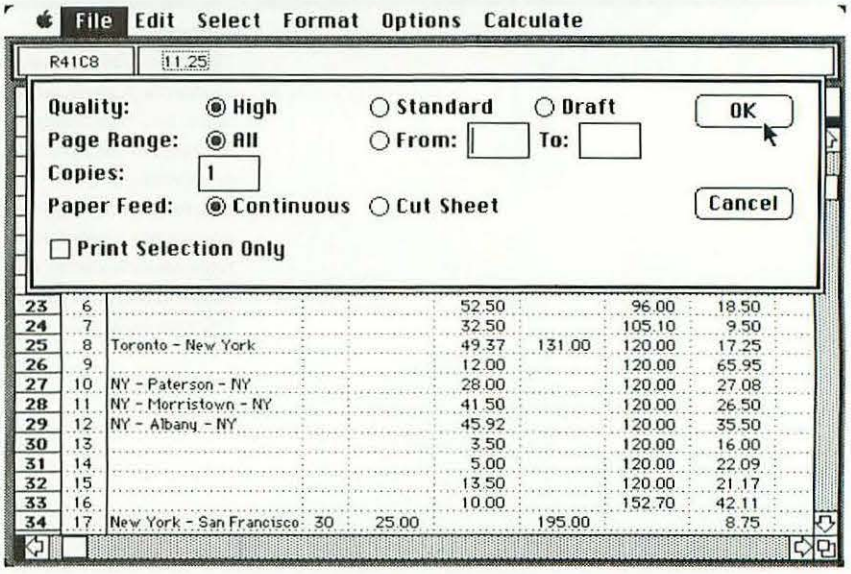


Figure 5
The Print dialog box lets you specify the print quality, a range of pages to print, the number of copies, the type of paper, and a selected portion of a spreadsheet to print. Draft printing is faster than printing in high or standard resolution, but it doesn't print grid lines and uses a font unlike the one displayed.

sheet to print, the number of copies to make, and the style of paper you are using.

High-quality printing produces the best-looking report—if the right font is in the System file. For a normal 10-point Seattle spreadsheet, you need 20-point Seattle in the System file. For a 9-point Geneva worksheet, you need 18-point Geneva. As mentioned before, the larger sizes are reduced 50 percent during printing, yielding the proper size type with a denser dot pattern than standard quality (which uses whatever font size the spreadsheet is displayed in). Standard-quality printing, however, is about twice as fast as high-quality printing.

Draft-quality printing is fast, but the image doesn't match the look of the displayed spreadsheet. Draft quality prints row and column numbers, but not grid lines. The font design is unlike the font displayed on the screen, and the font does not contain many special letters and symbols that are typed with the Option key. You cannot print in draft quality if you chose Wide orientation (sideways printing) during page setup.

Paper	Size
U.S. Letter (Letter size)	8½ by 11 inches
U.S. Legal (Legal size)	8½ by 14 inches
A4 Letter (European letter size)	8¼ by 11⅔ inches
International Fanfold (European continuous form)	8¼ by 12 inches

Paper Size

Multiplan offers four paper sizes and two printing orientations (Tall and Wide). When you choose one of the options, the program automatically adjusts the page boundaries to accommodate the paper size and orientation.

Ribbon condition and paper grade also affect printing quality. A letterhead bond type of paper gives the best results. Before clicking the OK button to start printing, make sure that your printer is connected to the Macintosh printer port and is switched on. Insert a fresh sheet of paper; if you are using continuous paper, set the paper at the top of a new page. With an Imagewriter, make sure the Select light on the printer control panel is lit.

Before *Multiplan* starts printing in standard or high quality, it takes a few seconds to copy the spreadsheet into an area of memory on disk. Then the program uses some of the memory space the worksheet formerly occupied for instructions that actually do the printing. Once printing begins, you can stop it by pressing the ⌘ and period keys simultaneously. *Multiplan* stops sending information to the printer almost immediately, but printing may not cease for several seconds. The printer has to finish printing any residual information it has already received and stored in its own memory.

Try experimenting with these *Multiplan* print options on your own spreadsheets—the combinations are too numerous to illustrate here. Don't miss sideways printing (the Wide option in the Page Setup dialog box), which this article only touched on briefly. It may make the difference between your worksheet fitting on a page or not.

If you still can't get the look you want—maybe you want to use boldface and italic text styles—one other road is open to you. Copy your entire spreadsheet to the Clipboard and paste it into a *MacWrite* document. The worksheet columns will line up with the tabs you set in *MacWrite* formatting rulers, and you can change text fonts, sizes, and styles to your heart's content. □

Command	Function
&L	Align the text that follows at the left margin
&C	Center the text that follows
&R	Align the text that follows at the right margin
&P	Print the page number
&D	Print the current date
&T	Print the current time

Command Codes

Headers and footers in a spreadsheet can include special commands that specify a position for the date, time, and page number. You can also give instructions to justify parts of a header or footer.

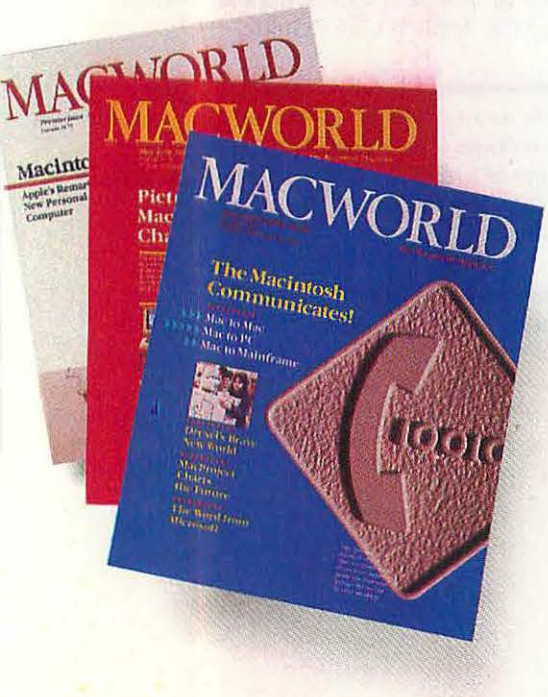
Lon Poole is a Contributing Editor of Macworld *and the author of several computer books, including* The Apple II User's Guide.

Portions of this article were adapted with permission from Lon Poole's MacWork/MacPlay: An Assortment of Creative Ideas for Fun and Profit on Your Apple Macintosh *(Microsoft Press, 1984).*

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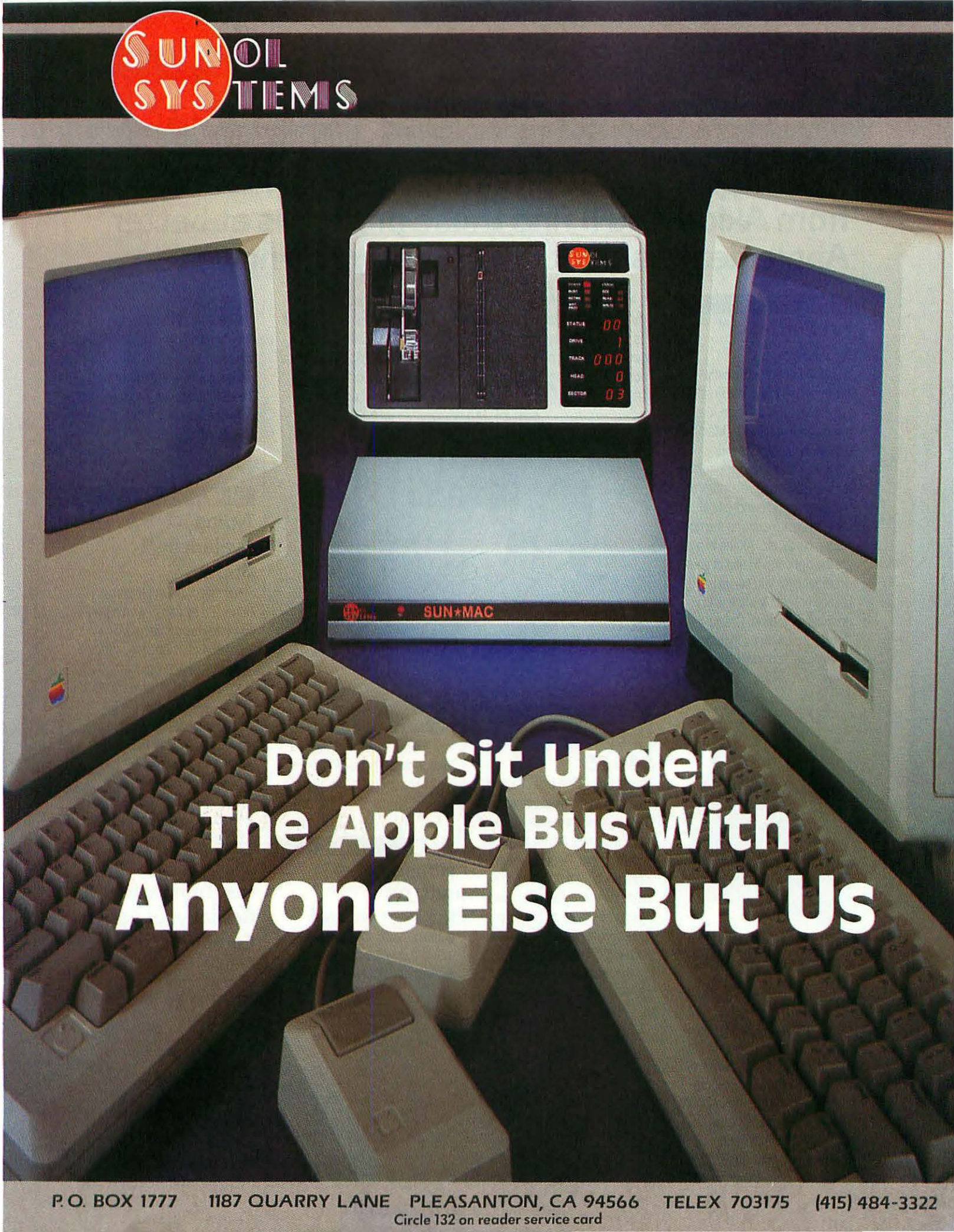
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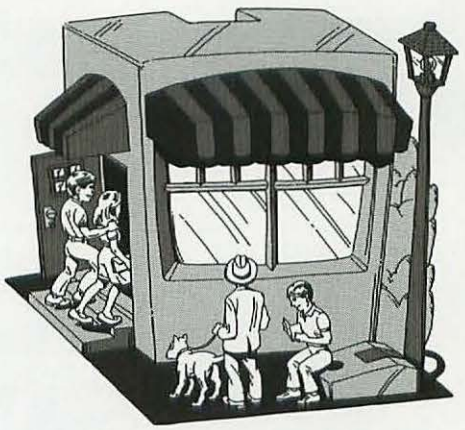
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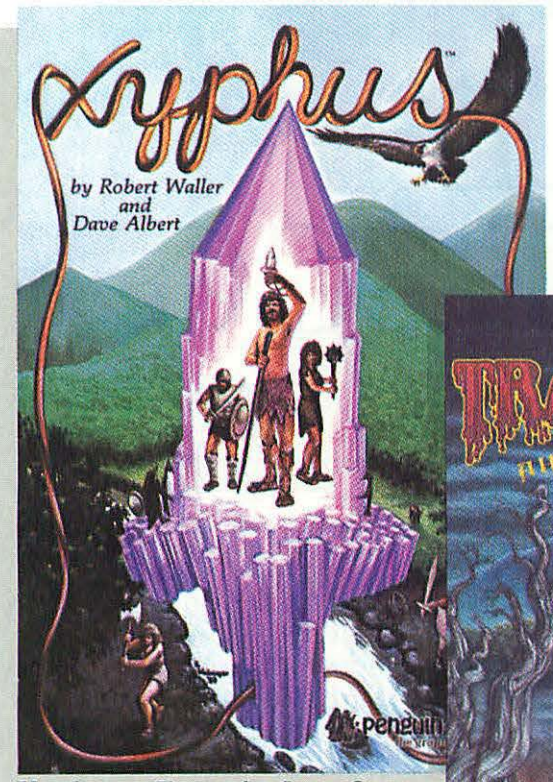
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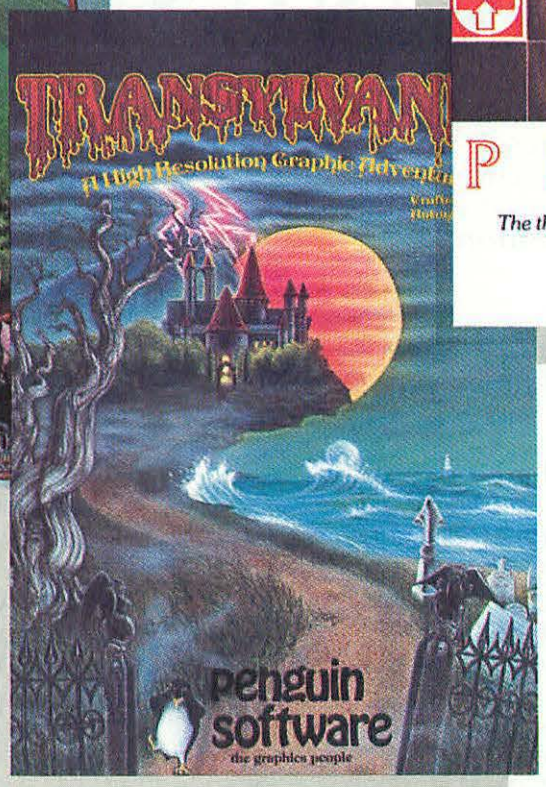
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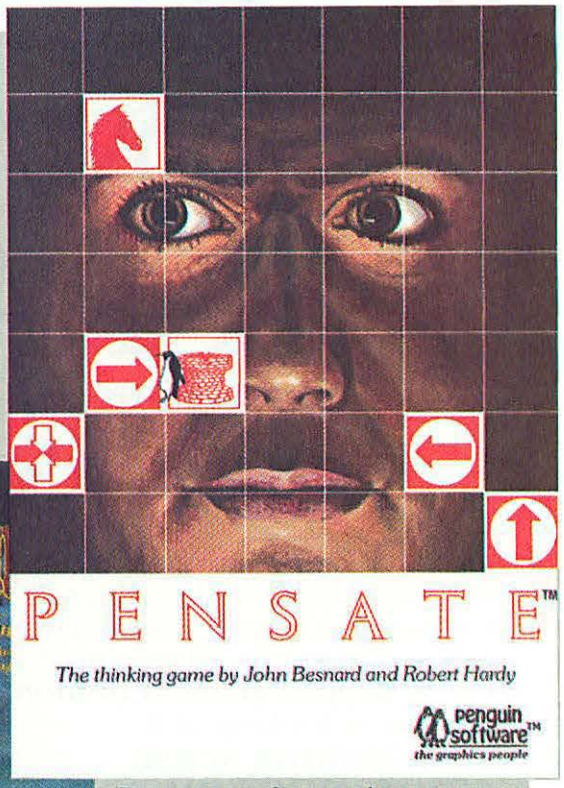
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Open Window

An exchange of Macintosh discoveries

Edited by Daniel Farber

Open Window *offers tips to help you use your Macintosh more efficiently. Submitted by readers, industry experts, and the* Macworld *staff, items in this department address all facets of Mac work, from innovative programming routines to capabilities of the Mac and application programs not covered in the manuals.*

This month's Open Window *covers a variety of items, including a Microsoft BASIC program that transforms the Mac keyboard from the standard QWERTY key assignments to the Dvorak arrangement, more techniques for resurrecting damaged disks, and several* MacPaint *discoveries. This month's column also includes three tips contributed by Neale McGoldrick, author of the forthcoming Addison-Wesley book* Applecations for the Macintosh.

Dvorak Keys

This Microsoft BASIC program transforms the Mac keyboard from the standard QWERTY layout to the Dvorak layout. The Dvorak layout groups the most often used characters on the home row and eliminates some of the awkward keystroking of the QWERTY layout.

```
100 REM  Dvorak (Simplified) keyboard setup  (same as //c )
110 ' by Ronald H. Nicholson, Jr.
120 PRINT "Do you want your keyboard modified to Dvorak?";
130 INPUT A$ : IF A$<>"y" AND A$<>"Y" THEN STOP
140 DEF FNLPEEK(Z)=PEEK(Z+3)+256*(PEEK(Z+2)+256*(PEEK(Z+1)+256*PEEK(Z)))
160 '   folowing are the strings for qwerty, dvorak
170 '     dvorak shifted, and dvorak with caps lock
180 QWERTY$="asdfhgzxcv~bqwerytl23465=97-80]ou[ip~1j'k;\,/nm."
190 DVORAK$="aoeudi;qjk~x',.pfy123465=97]80{rg/cl~nh-ts\wzbmv"
200 DVORSH$="AOEUDI:QJK~X',.PFY!@#$^%+(&[*)]RG?CL~NH_TS|WZBMV"
210 DVORCL$="AOEUDI;QJK~X',.PFY123465=97]80{RG/CL~NH-TS\WZBMV"
220   MID$(DVORSH$,13,1)=CHR$(34) : REM place dbl.quote in string
230   MID$(DVORAK$,37,1)=CHR$(13) : REM place CR in string
240   MID$(DVORSH$,37,1)=CHR$(13) : REM place CR in string
250   MID$(DVORCL$,37,1)=CHR$(13) : REM place CR in string
260 '
270 '   find "asdf"  KEYC package
280 P=&H2500
290 WHILE FNLPEEK(P)<>(65536!*&H6173+&H6466)
300     P=P+2 : WEND
310 IF FNLPEEK(P+&H35)<>(65536!*&H4153+&H4446) THEN P=P+2 : GOTO 290
320 '
330 '   install dvorak @ P
340 FOR I=0 TO &H2F: POKE (P     +I),ASC(MID$(DVORAK$,I+1,1)) : NEXT I
350 FOR I=0 TO &H2F: POKE (P+&H35+I),ASC(MID$(DVORSH$,I+1,1)) : NEXT I
360 FOR I=0 TO &H2F: POKE (P+&H6A+I),ASC(MID$(DVORCL$,I+1,1)) : NEXT I
370 PRINT "done"
380 PRINT "Select Key Caps from Menu for help."
385 PRINT "Reset gets you back to QWERTY"
390 END
```

Dvorak Keyboard
The program "Dvorak Keys" modifies the Macintosh keyboard from the QWERTY layout to a Dvorak layout (see the figure "Dvorak Key Caps"). Just enter the program with Microsoft BASIC (either version 1.0 or 2.0) and run it. The Key Caps desk accessory will show the appropriate key assignments for the Dvorak layout. If you want to change your keyboard back to the QWERTY layout, reload the program and reset the keyboard following the screen prompt.

Ronald Nicholson

Double Lines in MacWrite
Double lines, which are often used to set off a heading or divide segments in a bulletin, can easily be created in *MacWrite*. Press the ⌘ key and the letter U to toggle on the underline option (or choose Underline from the Style menu). Next, press Shift and the hyphen/line key (to the left of the = key), and you'll see a double line move across the screen.

Creating the same effect under a word or a group of figures in a column can only be approximated. First, enter the double line for two or three spaces. Then enter your figures with the Underline option toggle on to get a single underline, and then follow with a double line for two or three more spaces. The result looks like this:

LLR

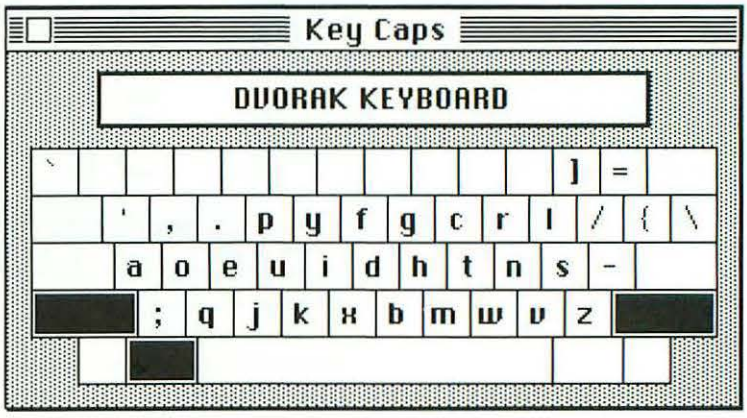
John R. Crawford
Petaluma, California

Centering MacWrite
Screenwriters, playwrights, and others who want to center titles or the names of characters in the middle of a *MacWrite* document have run into difficulty. Tabs are useful, but they do not center titles.

The most obvious way to center names of characters appearing in a scene is to insert a new ruler to center the desired text, then insert another ruler to return to left-justified text. An alternative is to set up a separate ruler format for each character and store the information in the Scrapbook. Then you can cut and paste the name as needed. A third approach is to attempt to set a tab for each character and advance the correct number of tabs before typing each name.

But the easiest and fastest way is to use the Change option in the Search menu as follows:

- Assign each character a number or a symbol to use in your working draft of the script. (Make sure the numbers or symbols you choose aren't used elsewhere in the script.)
- Enter each new name code on a line, and advance it to a tab mark set between the left margin and the center of the line. (If the line length is 66 characters, set the tab mark at 20. If the names are lengthy, set the tab closer to the left margin.)
- Complete the script using the symbols for each entry.
- Determine the number of spaces needed to center each name by counting the characters in the name and the number of spaces from the tab mark where the name should be inserted.
- Use the Find and Change options, inserting the appropriate number of blank spaces (using the space bar) before adding the correct name in



Dvorak Key Caps
With the keyboard configured in the Dvorak layout, the Key Caps desk accessory automatically displays the correct key assignments.

the Change box. There are 45 spaces available in this box, so you should be able to accommodate most names or titles.

- Use the Change/Then Find or Change All option to replace the code names with correctly centered character names.

Neale McGoldrick
Morristown, New Jersey

Full-Page Paint

Working on a full page is one of the most challenging aspects of using *MacPaint*. The easiest way to expand a picture to full size is to transfer it into a *MacWrite* document. *MacWrite* automatically scales the drawing to the correct full-page proportions, whereas you have to align different parts of a drawing with *MacPaint* to create a full-page document (see the figures "*MacPaint* Columbus" and "*MacWrite* Columbus").

The following steps describe how to expand a *MacPaint* drawing with *MacWrite*.

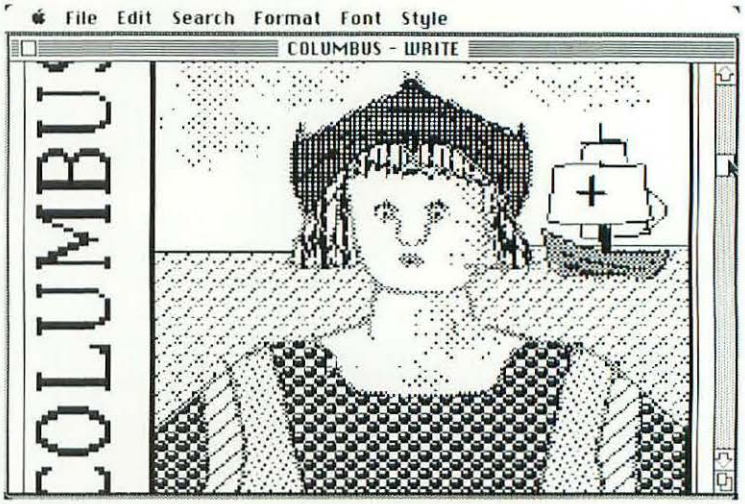
- Copy the image from the *MacPaint* document window into the Clipboard of your startup disk.
- Open up a *MacWrite* document and paste the drawing into place.
- Enlarge the drawing to full size by dragging the image down the page. Although you will not have to cut or paste the image, you won't be able to edit the drawing.

Neale McGoldrick
Morristown, New Jersey

Expanding Paint

Jeffrey Young's article "Stepping into the Paint Bucket" (July/August) includes a tip on expanding a *MacPaint* drawing to full-page dimensions. I have discovered another way to expand a drawing that minimizes distortion (see the figures "Horizontal Expansion" and "Vertical Expansion").

- Divide the drawing window into three vertical sections. You can indicate the division lines by drawing short lines at the top of the screen; these can be erased later.
- Starting from the left, draw a marquee around the section on the left and move the section to about mid-screen.
- Use the Rotate option from the Edit menu to rotate the selected part of the drawing.
- Cut the selected part of the drawing to the Clipboard.
- Choose the Show Page option, position the drawing window at the bottom of the page, and click OK to return to the drawing.

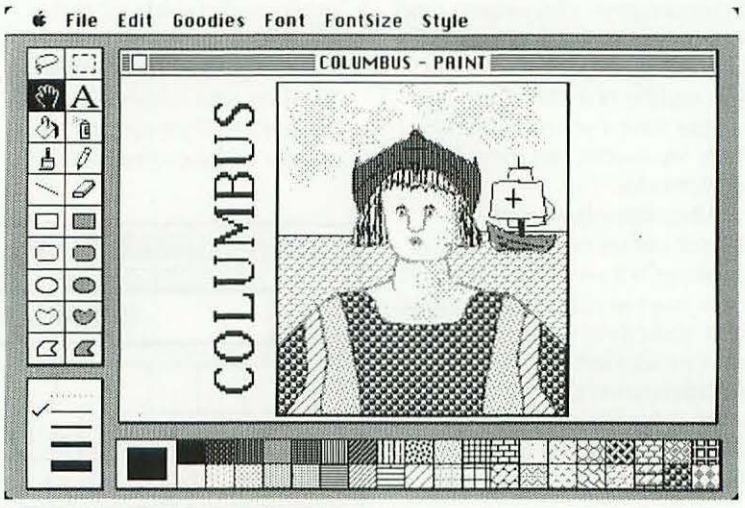


MacWrite Columbus

To expand the drawing to full-page dimensions in MacWrite, *drag the selection rectangle (marquee) to the end of the page. The drawing is scaled automatically to the correct proportions.*

- Select the entire window by double-clicking on the marquee icon, and paste in the selected part of the drawing from the Clipboard. The drawing section is thus expanded to the full dimension of the window area (a third of a full page).
- Follow the same procedure for the other two sections of the drawing.

Bill Andel
Philadelphia, Pennsylvania



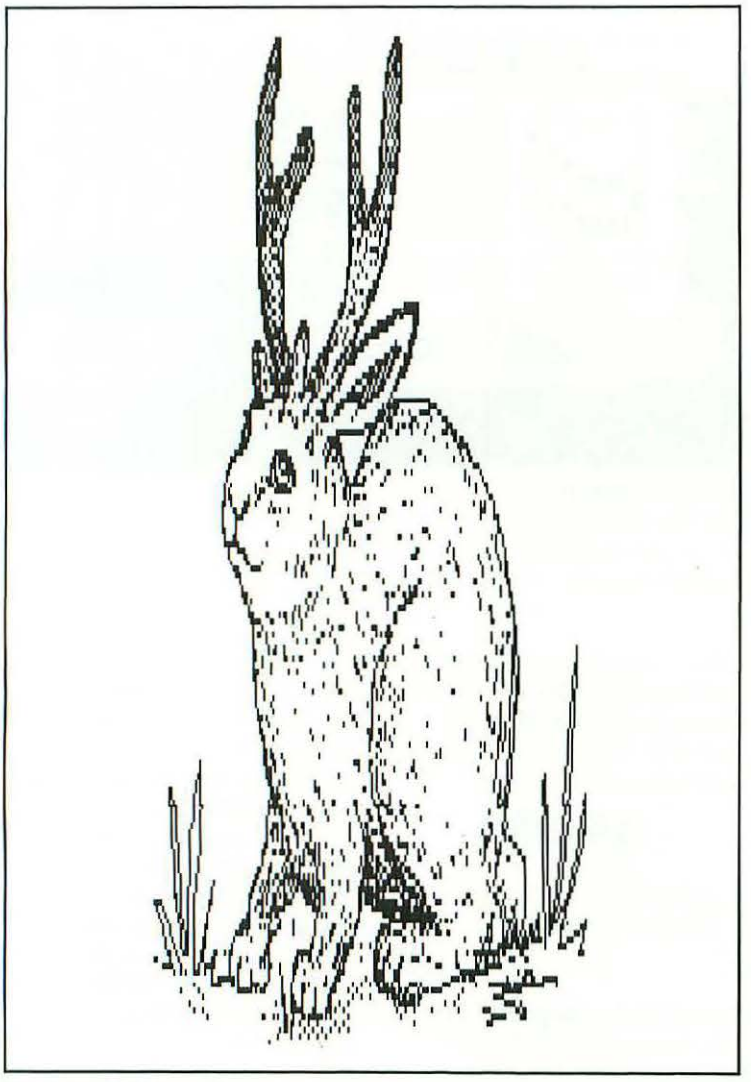
MacPaint Columbus

Expanding a drawing to full-page size in MacPaint *requires several steps of cutting and pasting portions of the drawing. An easier way is to expand a drawing to full-page size in* MacWrite. *First, copy the drawing into the Clipboard, and then paste it at the top of a* MacWrite *document.*

Custom Patterns

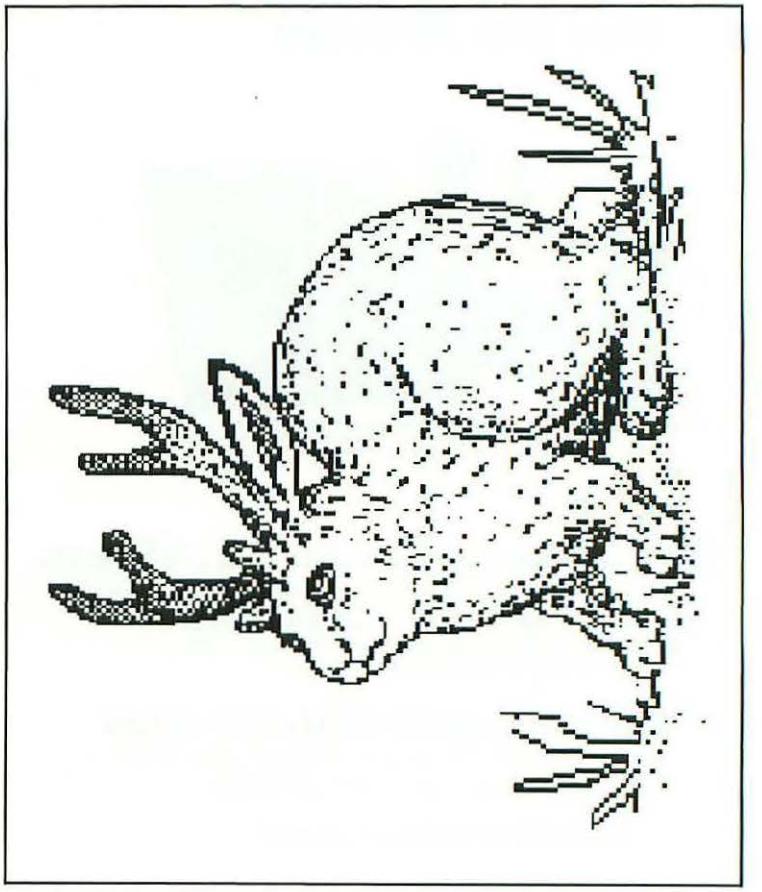
One of *MacPaint*'s unique features is that you can create your own patterns. Any new pattern you create is added to the pattern palette and saved automatically with the drawing, replacing one of the standard patterns. You may want to reproduce a pattern you created in a document. The following two techniques describe how to save a pattern for future use.

- Copy a section of the desired pattern onto the Clipboard and paste it into a new document. Then double-click on a pattern from the pattern palette. This procedure displays the selected pattern in the Edit Pattern window.
- Click on the pattern you pasted into the document to make the pattern appear in the Edit Pattern window. Save the new pattern by clicking



Horizontal Expansion

Enlarging a MacPaint *drawing by dividing it into three horizontal sections and expanding each section gives you an elongated version of the drawing.*



Vertical Expansion

By dividing a drawing into three vertical sections and then rotating and enlarging each section, you keep the proportions of your original drawing relatively intact.

OK. It automatically becomes part of the document's pattern palette.

- Take a snapshot of the screen (⌘-Shift-4 to print the screen immediately, or ⌘-Shift-3 to create a *MacPaint* document of the current screen) with the desired pattern showing in the Edit Pattern window. This procedure preserves both the pattern and the dot-by-dot image in FatBits so that you can recreate the pattern by copying the pattern in the 8- by 8-dot editing window. Keeping records of custom patterns on paper is probably the handiest way to preserve them (see the figure "Custom Pattern").

Neale McGoldrick
Morristown, New Jersey

Cut-Sheet Printing

I have discovered a problem not covered in the documentation for the Imagewriter printer. When you use the Cut Sheet printing mode and hand-loaded paper, you have to start the sheet as close to the top as possible to prevent overflow of the print off the bottom of the page onto the platen. For some reason, the Imagewriter ignores the Paper Error signal and continues to print until the document is completed, even though there may be no paper under the type head. The type head could be damaged by printing a significant portion of the document directly on the platen.

One way to solve this problem is to use a cut-sheet feeder. If you don't have one, you can select the Continuous printing mode even when you use cut sheets. The Imagewriter will stop printing shortly after the Paper Error light comes on, and then you can use the Select button to control the printing of the last few lines.

D. Scott Nord
Philadelphia, Pennsylvania

Secret Character

In my ongoing quest to discover the hidden treasures of the Mac, I spend a great deal of time playing with different key combinations, fonts, and font sizes in search of secret characters. Perhaps I'm trying to put

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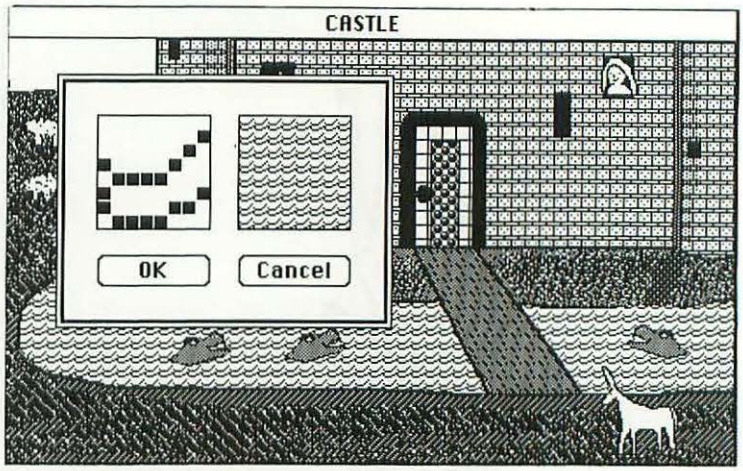
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Custom Pattern

You can maintain records of custom patterns by taking snapshots of the dot patterns in the Edit Pattern window. When you want to use a particular pattern, you fill in the dots as in the printed version.

off writing my term paper on Spinoza. Whatever the case, I found that typing Shift-Option-⌘ in 10-point Geneva reveals the following icon:



Leah Raskin
Miami, Florida

Model 100 Compatibility

The computing world has blessed us with an unexpected gift. If you own a Radio Shack Model 100 lap computer, you'll be delighted to know that it's 100-percent compatible with your Macintosh. You don't have to buy anything additional–not even a cable.

Use your Model 100 to create any text file using the built-in word processor. When you're ready to move the file to the Mac, just switch the Imagewriter cable from the printer port to the phone port on the back of the Mac. The printer end of the cable fits perfectly into the RS-232 port on the Model 100. (Don't worry about pin assignments or any other technical stuff–the pins are already set correctly.)

Now load a communications program on the Mac–either *MacTerminal* or one of the public-domain programs such as *MacTep.* Run the *Telcom* program on the Model 100. Make sure that both computers are set for the same baud rate, data bits, stop bits, and parity scheme, and enable XON/XOFF. Now send your Model 100 file to the Mac, capturing the transmitted information on the Mac as a file.

Finally, exit your Macintosh communications program and call up *MacWrite*. You'll find that your text file is perfectly formatted into lines and paragraphs, and you can add text enhancements in *MacWrite*. Then choose Save As from the File menu and save the file as a complete document. (One minor wrinkle: you may receive the alert message "Can't save this file." Just click OK and give the Save As command again. It will work on the second try.)

When was the last time you were able to swap files between two completely different computer systems with absolutely no hassle? Since the Model 100 has recently been discounted, it's a very attractive accessory for the Mac traveler who wants to be able to write at 30,000 feet.

Andrew Fluegelman
Editor-in-Chief, Macworld

Faster Two-Disk Ejection

Before I bought a Mac, I was spending my spare time fine-tuning my vintage Jaguar. Now that I have a Mac, I spend most of my leisure time fine-tuning the Mac. I've discovered a simple way to eject the disks from the internal and external drives with a minimum of fuss.

Many people are aware that you can press ⌘-Shift-1 followed by ⌘-Shift-2 to eject the two disks quickly. A faster way is to select both disk icons with the selection rectangle and press ⌘-E. Another way to eject both disks is to choose Select All (⌘-A) from the Edit menu, followed by Eject (⌘-E). If you frequently juggle disks in and out of the drives, you'll appreciate the time savings.

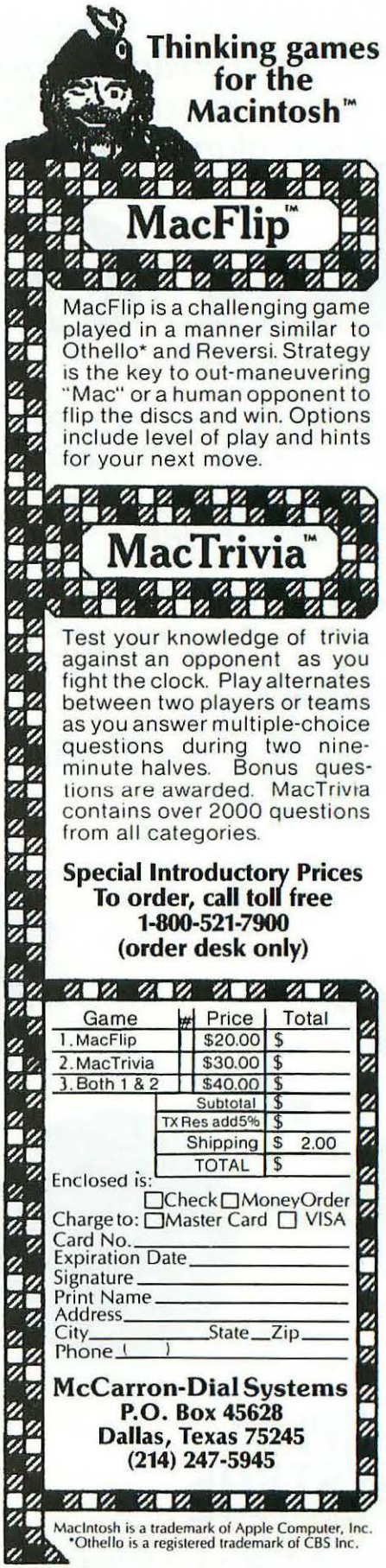
Robert Hender
Ocean Beach, California

Resurrecting Disks Update

Several solutions have been offered for resurrecting disks that the Mac cannot read (see *Get Info,* July/August). One way is to press the small button on the lower-right side of the drive slot. At best, this solution is inelegant; at worst, it can damage the disk drive. A better solution is to start up a work disk and open the Disk Copy utility. When the Mac asks for the disk you want to copy, feed it an initialized blank disk. When it asks for the destination disk, give it the locked disk. The Mac will then tell you that there is data on the disk and will ask if it can initialize it.

Arthur A. Chaykin
Dekalb, Illinois

Perhaps you've come up with a nifty routine, gained some insight into how the Mac or an application program works, or even written a short program that performs a useful function or creates an interesting diversion. Tell us about it, and we'll pass your discovery along. We'll also pay $25 to $100 for each Open Window *item published. Please send your Macintosh discoveries on a disk (which we will return) to* Open Window, *555 De Haro St., San Francisco, CA 94107, or electronically to CompuServe 74055,412 or The Source STE908. All submissions become the property of* Macworld. □

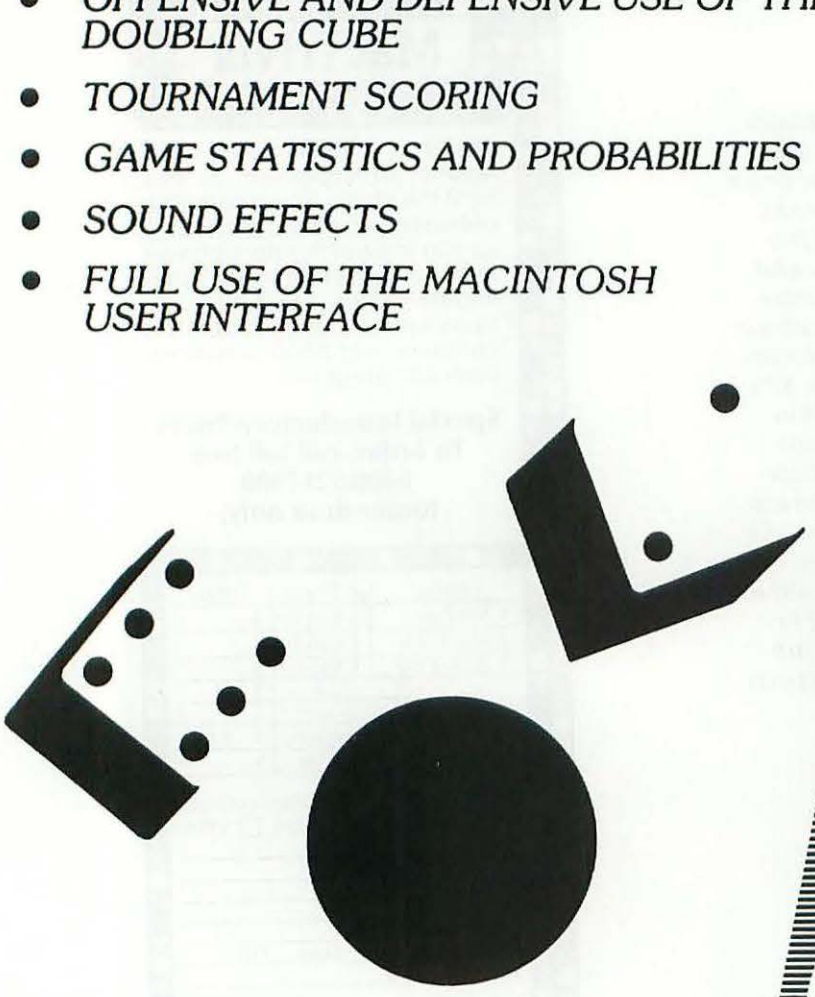


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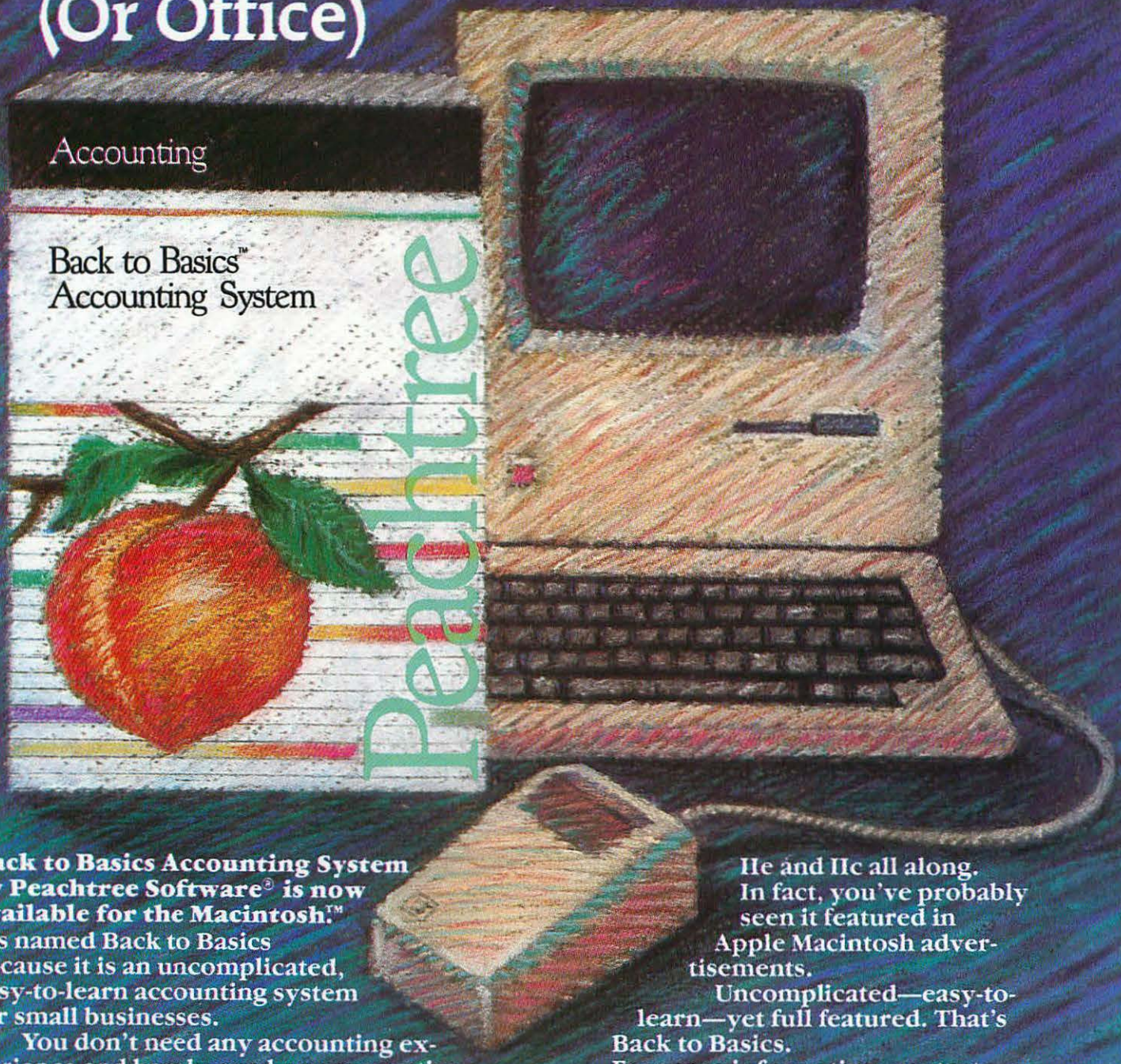
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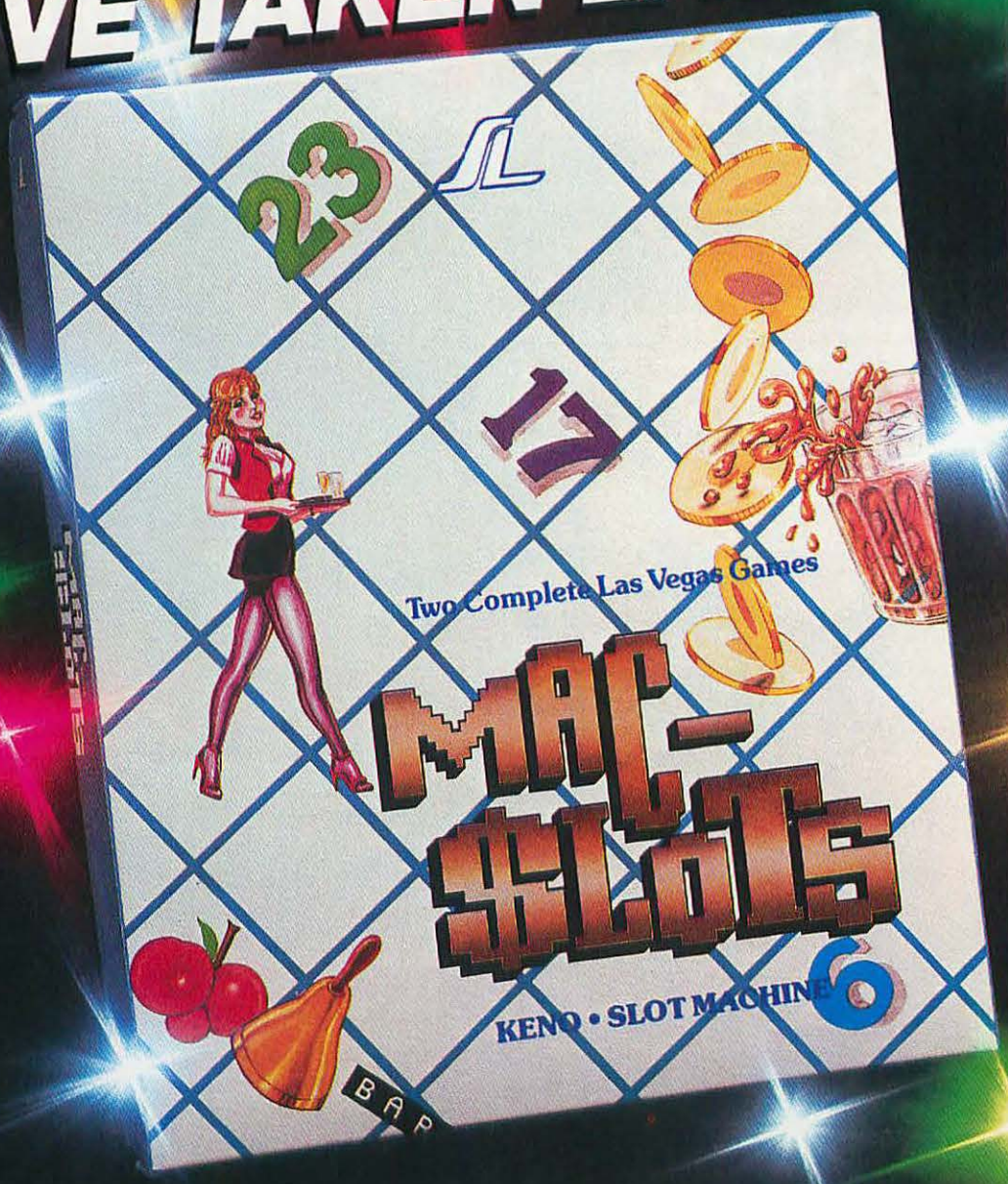
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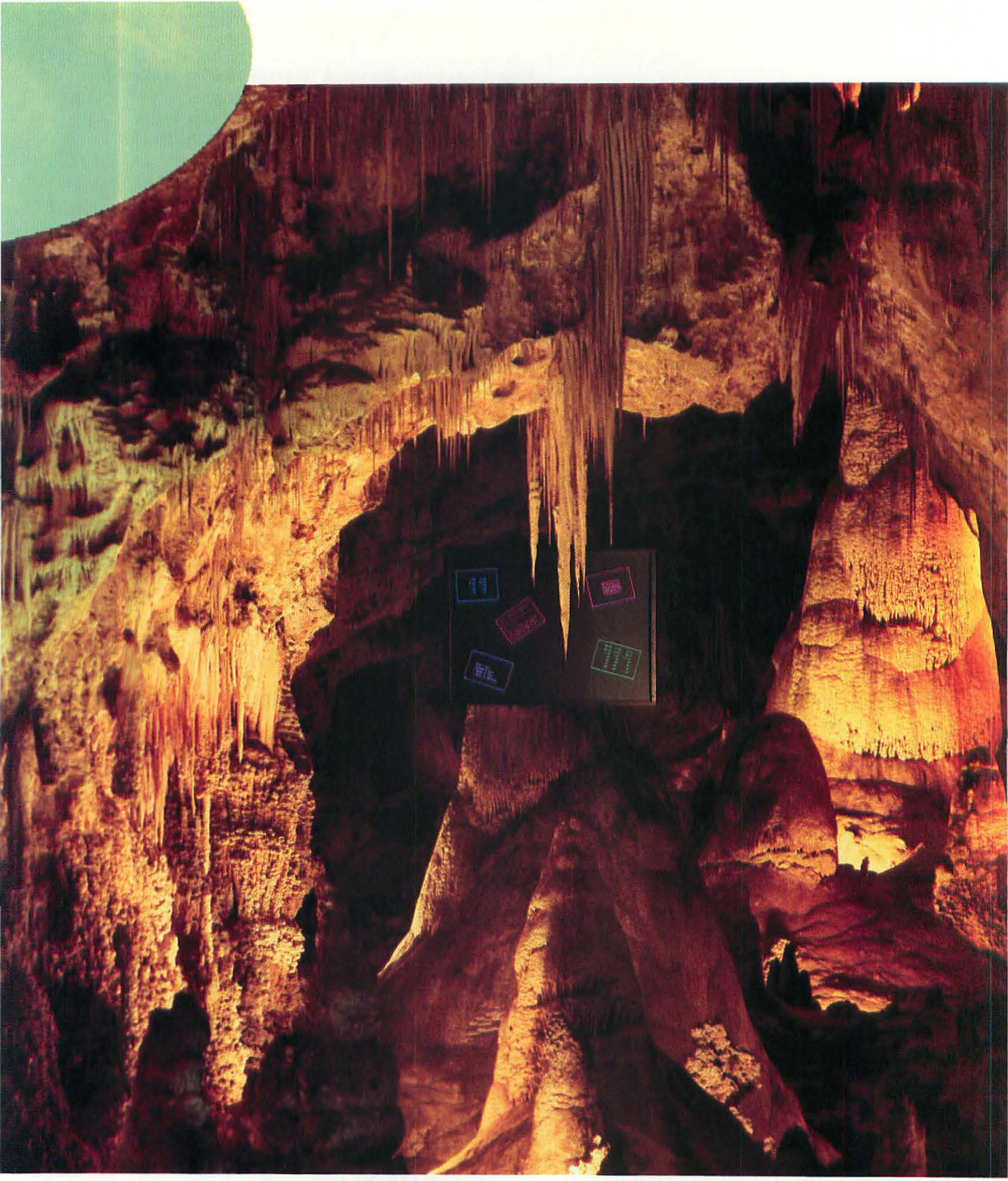
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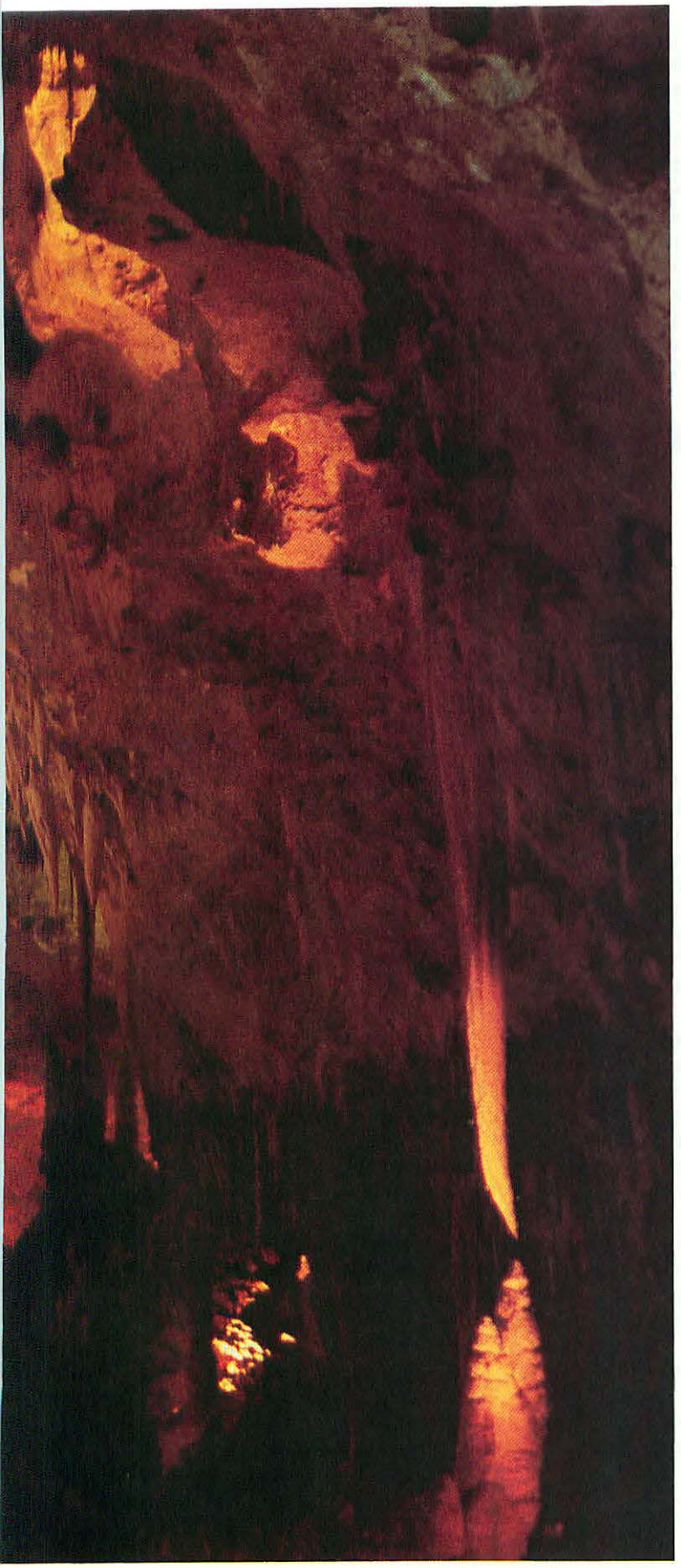
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Into the Mouth of the M.A.U.G.

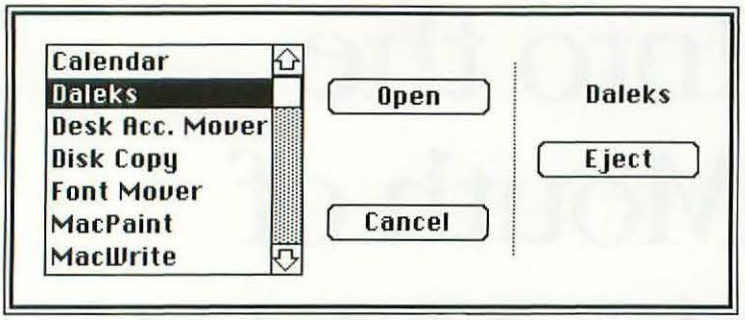
Jeffrey Young

It's pitch-dark outside and I'm hunched over my keyboard staring at my Macintosh. On the screen, lines of strange-looking text are moving slowly up and out of sight. I must have looked at the same menu two dozen times, trying to comprehend the rows of S's, R's, X's, and I's that are supposed to help me find my way into this electronic cavern. I repeatedly tap the Return key and watch the inch-high blocks of text flutter by and disappear off the top of the screen. Funny, but they look more and more like cavern bats now that exhaustion is setting in.

I've been on the CompuServe information service for more than an hour and I'm just as bewildered as I was when I turned on my Mac. The friendly guy who got me started told me that I could find the Micronet Apple user group by typing the cryptic command "Go PCS 51" at the "prompt"—whatever that was.

As I sit here before the mouth of the cave, frustrated because I can't find the magic words that slide open the slab of information service granite sealing the entrance, I remember to try that strange phrase "Go PCS 51." It proves to be my "Open Sesame"; my Macintosh screen immediately springs into action. The phrase "Request Recorded" is the first thing I see. Then, after a short wait, the fabled words "Welcome to M.A.U.G" appear on the screen.

I've done it. I have successfully entered the caverns of the electronic information sultan, CompuServe. The Micronet Apple user group, otherwise known as the M.A.U.G., might be Ali Baba's cave as far as I am concerned. And the treasures strewn in front of me look every bit as fabulous as those in the Arabian Nights.



Applications Mini-Finder

Free software for the Mac is available in the Reference Library. Although you can't run the programs or view their graphics while on CompuServe, you can download them for execution on your Mac. One program available on the M.A.U.G. is the Applications Mini-Finder, which shows the applications residing on disk. Ordinarily, the Mini-Finder shows only documents tied to the current application, without showing the application itself.

I began my journey into the heart of the M.A.U.G. after overhearing snippets of conversation at user group meetings. I heard that Mac enthusiasts across the country were fending off computer isolation by forging new friendships on electronic bulletin boards. People said electronic bulletin boards provided a place to exchange the latest computing gossip and keep tabs on the continually revised release date of languages and programs you had your eye on.

I found that there comes a time, after you've shown your new equipment to your friends, family, and neighbors, when you want to reach out and share your discoveries and frustrations with other Mac owners. And if you've heard about popular information services such as The Source and CompuServe, you find yourself staring longingly at modems, holding the *MacTerminal* program in your hands, and thinking seriously about signing up for one of them.

The Source and CompuServe are communications networks that provide a central location for exchanging electronic mail, bulletin board messages, and software. They also have facilities for special-interest groups, such as CompuServe's Apple user group. And both information services provide a number of additional services to Mac owners. You can read the latest reports on news, weather, and sports from major wire services and publications. Various business services are available, including electronic banking; financial analysis and planning programs; and reports on stocks, bonds, money markets, and mutual funds. You can also enjoy other diverse benefits, which range from making travel arrangements to reading gardening tips and book, movie, and restaurant reviews.

Starting Your Journey

Before you take the communications plunge you should know what you're getting into. Although you can glean a great deal of information from either The Source or CompuServe, you have to pay for it. When you sign up for CompuServe, you pay either $19.95 or $39.95. For the $19.95 price you receive one hour of use, and for $39.95 you receive five hours. The charge for each following hour during prime time (8 a.m. to 5 p.m. Monday through Friday) is $12.50 per hour for a 300-baud modem and $15 per hour for a 1200-baud modem. During nonprime time (5 p.m. to 8 a.m. Monday through Friday and all day on weekends and holidays) the charge is $6 per hour for a 300-baud modem and $12.50 per hour for a 1200-baud modem.

There comes a time when you want to reach out and share your discoveries and frustrations with other Mac owners.

The registration fee for The Source is $49.95 plus a minimum monthly charge of $10 worth of time whether or not the time is actually used. During prime time (7 a.m. to 6 p.m. Monday through Friday) the charge is $20.75 per hour for a 300-baud modem and $25.75 per hour for a 1200-baud modem. During nonprime time (6 p.m. to 7 a.m. Monday through Friday and all day on weekends and holidays) the charge is $7.75 per hour for a 300-baud modem and $10.75 per hour for a 1200-baud modem.

Every minute you're connected to the service (or "on-line" as initiates say) is like being in a taxi—the meter runs continually until you finally type "Off" and leave the system. This situation is no problem if you're familiar with the territory. Within minutes of "logging on" you can reach the area you want, extract the necessary information, and be gone, or "log off." But as a beginner you may feel like you're stuck in rush-hour traffic on the Long Island Expressway in a cab whose meter is running suspiciously fast. You can easily spend two to three hours and 50 bucks on top of your registration fee before you even begin to understand what services are offered and how to use them.

You can't tally the price you pay for on-line information in dollars and cents only, either. If you've grown accustomed to the Mac's icons, windows, pull-down menus, and mouse, hold on to your seat. Information services are designed for old-fashioned com-

puters. Operations such as logging on, scanning information, and sending and receiving messages must be carried out with keyboard commands that often bear little linguistic relation to their purpose. If you aren't converted already, one hour on either The Source or CompuServe will make you a true believer in the Macintosh user interface.

But don't get discouraged; there is a way to reduce the cost and confusion of initiation. When you first log on to the service, record the menus as quickly as you can and save them on disk. Then log off and print out the information. The printed menus can serve as a map of the information service. Study your printed menus until you feel comfortable with them; then return to the system. Now you can navigate by landmarks instead of exhausting your money and patience while you aimlessly wander around.

Welcome to the M.A.U.G.

Because I was looking for a community of Apple users, such as the M.A.U.G., I decided to explore CompuServe. Once you subscribe to CompuServe, you can become a member of the M.A.U.G. at no extra charge. You can then take advantage of the three sections of the M.A.U.G.–the message system, the reference library, and the conference area.

The M.A.U.G. makes some attempt to help beginners when they first enter the group. A welcome message left by the system operator (or "Sysop") explains the three sections of the M.A.U.G. You can enter the message system to read and leave messages and survey other members' messages for practical ideas and hints. The reference library is a group of data bases where you find bulletins, instructions for the bulletin boards, and Macintosh programs that you can download to your own computer. And the conference area is a set of channels designed for informal and structured on-line conversations. The welcome message also gives a few commands that help you get more information about the sections.

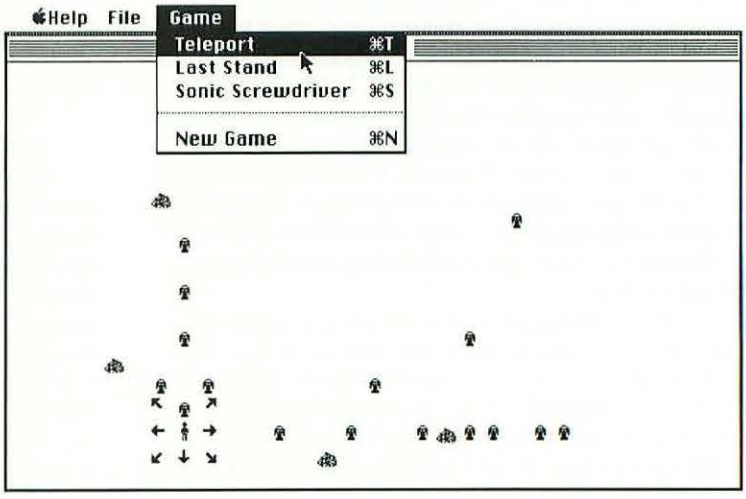
Once you stumble into the M.A.U.G., you encounter its version of the Rosetta Stone–the Function menu. The Function menu contains cryptic commands such as "L" for "Leave a message," "B" for "Read bulletins," and "RT" for "Read thread." Beyond the Function menu are other menus holding more baffling commands. Eventually, you can figure out what the commands mean–you just spend enough hours on the system to try them all. To a large extent, you must learn this strange language by yourself.

The Valley of Messages

The first time you enter the M.A.U.G. and see the messages queuing up one after the other, you'll know how explorers must feel when they discover a long-sought treasure. You may have been isolated before, but suddenly you're a member of a community, a community with answers to almost every question about the Macintosh you have ever had or will ever have. The system provides access to an enormous body of constantly changing information about products for the Mac and other Apple computers and solutions to programming and other computing problems. And all the messages are public; they can be read by you and everyone else with access to the bulletin board.

In addition to the fundamental commands offered in the Function menu, a number of advanced methods are available for investigating the information contained in the messages. You can perform keyword searches, follow chains of messages relating to specific topics, and scan messages by the number of days they've been left on the system.

Using the message system itself may sound difficult. And it is, at least until you've used the system a few times and conquered your fears. But even after you learn how to access information, many of the mes-



Daleks

Another program in the Reference Library is the action strategy game Daleks. *In this game, you attempt to survive by avoiding steadily converging robots. If you are overrun by the robots, or move into their immediate zone of control, you are disintegrated. By guiding the robots with your actions, you can get them to destroy themselves as they collide with each other. You can escape by teleporting out of range, or you can destroy adjacent robots once each round with a sonic screwdriver.*

sages sound like some weird Cajun dialect. Most of the words are recognizable as English, but their meaning escapes you. For instance, try to follow this message:

"My Mac went nuts, too, but I thought this was normal due to the nature of the type of file. So I downloaded a couple of times with RLMTEP using OPT-R, which read 800 blocks of the *Life* file before giving me an error message. Then I used *Red Ryder* and downloaded via Xmodem. Then RRDTD read 3 blocks and bombed. I suspect the problem is in the nature of the file vs. the CIS upload."

If you bomb like the program mentioned above when you attempt to understand this message, you're excused. "RLMTEP" refers to a public-domain modem program available on the CompuServe reference library. *Life* is a game that was converted for the Mac by Bill Atkinson (creator of *MacPaint*) and provided free by him through many user groups and bulletin boards. *Red Ryder* is another public-domain communications program, and "Xmodem" refers to a file transfer protocol that many computers use. "RRDTD" is programmer shorthand for a *Red Ryder* conversion program, and "CIS upload" refers to the original transfer of *Life* into the CompuServe library. Everything clear now?

While some M.A.U.G. conversations will streak over your head like so many bats, you'll discover that you can ask for and receive intelligible help. The most encouraging thing about the replies is their tone, which is always cordial, usually practical and helpful. Often, within minutes of a plea for help someone will take the time (and pay the price) to share information with you. There are also many informative messages about products and techniques. If you've been trying to master new software or even to write your own programs, exchanging ideas with other Mac owners can help you overcome any roadblocks you encounter along the way.

"When I bought my Macintosh several months ago there was absolutely no [communications] software available," explains Brad Vautrinot, a Boston Mac owner who finds the M.A.U.G. invaluable. "And when I began to come onto the bulletin board I had no idea what I was doing. I had a Franklin computer before so I was familiar with the M.A.U.G., but I had no idea how to download or transform files into something I could use.

"For instance, I was using an early version of BINHEX [a binary-to-hexadecimal transformation program that allows *MacPaint* images to be converted into a form that the information service computer can store] to transform programs. I kept getting a few lines of garbage at the beginning of every file . . . garbage that made the programs go crazy when I tried to run them.

"So I put a message on the board asking for help and within half an hour somebody told me to try another program called TRIM.BAS to remove the extra garbage lines my system was reading into the program. Once I did that the programs worked like a dream."

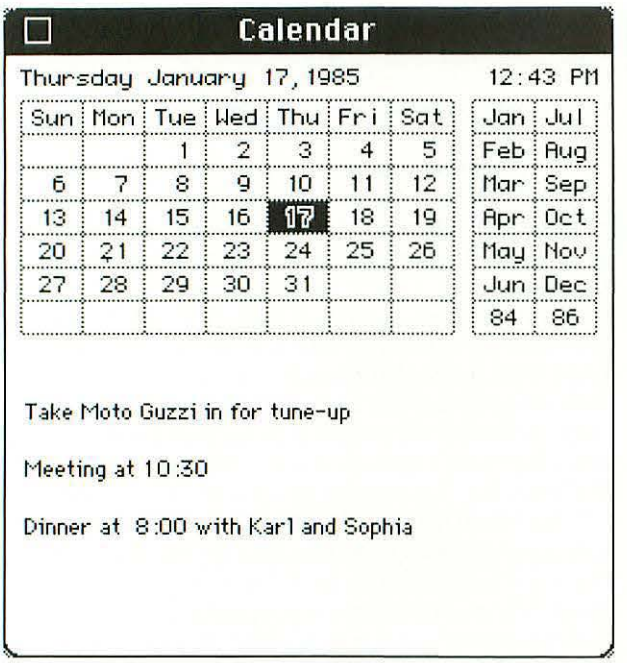
Most CompuServe and M.A.U.G. devotees, like Brad Vautrinot, seem to be programming-oriented, or at least fairly advanced. The composition of the group may reflect the fact that early Mac owners had to have previous telecommunications experience (and for that matter, access to another computer) to use CompuServe. But one of the underlying rules of bulletin boards is that any group can influence the direction of the messages. If a large number of beginners joins up, they will turn the focus of the board to their interests. So don't despair if you find at first that few messages reflect your enthusiasms.

Often, within minutes of a plea for help someone will take the time to share information with you.

The Underground Library

The Reference Library was probably the most valuable section of the M.A.U.G. during the first six months after the release of the Macintosh. Members of CompuServe have access to "freeware"–public-domain software written by other members. One free program, *MacTep,* helped Mac owners use their machines to send and receive information several months before commercial communications software such as *MacTerminal* became available.

The Reference Library is divided into nine sections, which are numbered from XA0 to XA8. The XA4 section offers software for the Macintosh and the Lisa, including application programs, games, and graphics. These programs have all been uploaded by various CompuServe members and can be downloaded by any subscriber for the cost of the time used and a disk to store the programs on.



Calendar

Once you download this calendar program from the M.A.U.G., you can install it as a new desk accessory. The Calendar tells you the date and lets you make notes for appointments or other reminders by clicking on any day shown in the Calendar. After the day appears, you simply type your notes in the lower portion of the window.

A variety of software is available on the M.A.U.G. A program like *MacTep* is very useful, and enables you to communicate using your Mac without buying the more expensive Apple program. Other software, such as games, music programs, desk accessories, and programs that fix bugs in other software, will undoubtedly make you look forward to periodic searches of the library. But don't expect to find alternatives to commercial-quality application programs.

Two additional sections of the library, XA5 and XA0, might interest you. In XA5, members record their impressions of Mac and Lisa hardware. This information can help you to make purchases and solve hardware problems. Recent files, for example, include comparisons of hard disks as well as pin diagrams for different types of cables and connections. And in the XA0 library a number of help files are located; these explain different aspects of the operation of the M.A.U.G. This library is a good place to find help if you've lost your way for the umpteenth time.

The Chamber of Voices

You may not have realized it, but in addition to everything else your Mac can double as a CB radio. The M.A.U.G. has a weekly on-line conference, when Mac and Lisa owners can converse by typing on their keyboards and reading the responses from other participants on screen. This is also the only time you can communicate directly with the system operator.

The Sysop is a mysterious character who, because of the essentially anonymous nature of the bulletin board and the power he wields over the entire operation, seems like some electronic genie. You read material produced by the Sysop whenever you take a look at the bulletins from the user group menu, but the conference session allows you to ask him direct questions. And once you've made a few journeys through the caverns of the information service, you'll probably have a few good questions to ask.

However, you might feel more comfortable watching a conference in its entirety before attempting to participate. Conferences have their own rules of etiquette so that people can share the same forum without interrupting each other in mid-sentence. And M.A.U.G. users, like any subculture, form cliques. You'll soon discover that much of the conference is taken up by various long-distance "friends" hailing each other on-line. Between the electronic glad-handing, however, the users and the Sysop provide some useful information.

Here's an example from a conference that was held a few months back with Steve Wozniak as a participant.

"(30,Ed Bernstein) Are you Woz?

(30,Maug Demo) Yes, I am Woz.

(30,Pete Kosel) Aha!

(30,Ed Bernstein) Are you able to talk about new hardware?

(30,Woz) I can talk about new hardware.

(30,Ed Bernstein) Woz, comment on Peanut or new Apple hardware upcoming?

(30,David Humphrey) What's the best modem for the Apple?

(30,Woz) I like Apple Cat II. Peanut is Edsel, not enough dealer margin, not enough home software yet.

(30,Bill Cook) Go Roger Kaplan.

(30,Roger Kaplan) Is the atmosphere at Apple as homey as it used to be, or is it becoming a monolith like IBM?

(30,Woz) Apple is more of what it began as than any other large successful computer company, but it is well managed with greater structure."

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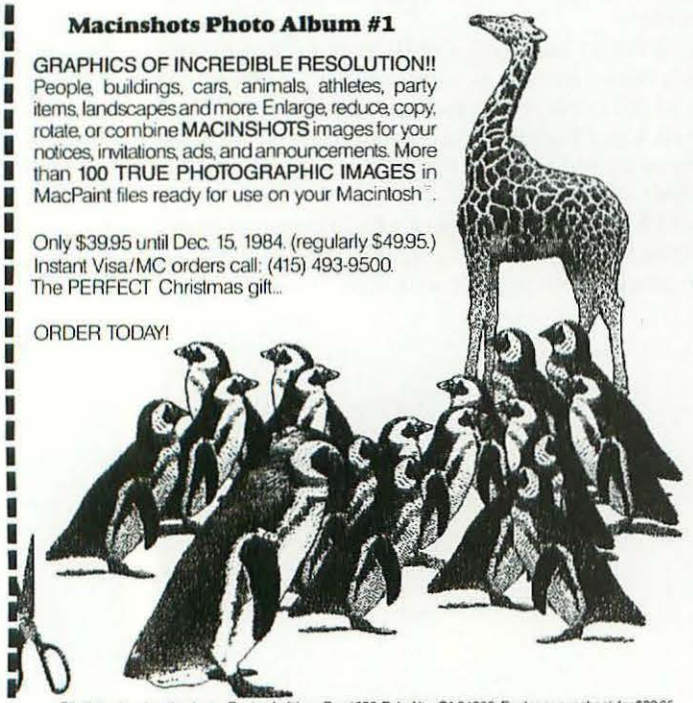
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As you can see, conferences give you a chance to talk to industry leaders and air your opinions. If for no other reason than entertainment, you should tune in on one sometime. What's your handle, good buddy?

I've been wandering through the caverns for hours. In the last few miles the going has definitely gotten easier. Wait, is that light up ahead? I've been groping in the dark for so long that it temporarily blinds me.

It is daylight. A shaft of light slices through the darkness. This must be where I climbed into the cave. With a few lightning-fast moves on the keyboard I return to the command prompt and enter "Off." Instantly the screen tells me that I'm logged off and that I was connected for . . . that can't be right. 237 minutes? Just under four hours? Impossible!

As I look up from my Mac, dawn throws its pale yellow rays through the blinds of my room. I guess I've been initiated into the society of CompuServe. Tired, but strangely satisfied, I pull myself out of the bulletin board cavern to reenter the real world. A strange phrase repeats itself in my mind as I drop off to a fitful sleep: "Go PCS 51 . . . Go PCS 51 . . . Go PCS 51 . . . Go PCS 51. . . . " □

●●●●●●●●●● *Jeffrey S. Young is a Contributing Editor of* Macworld *and a freelance journalist who has written for several national publications, including* Esquire. *He is the author of* Inside MacPaint, *forthcoming from Microsoft Press.*

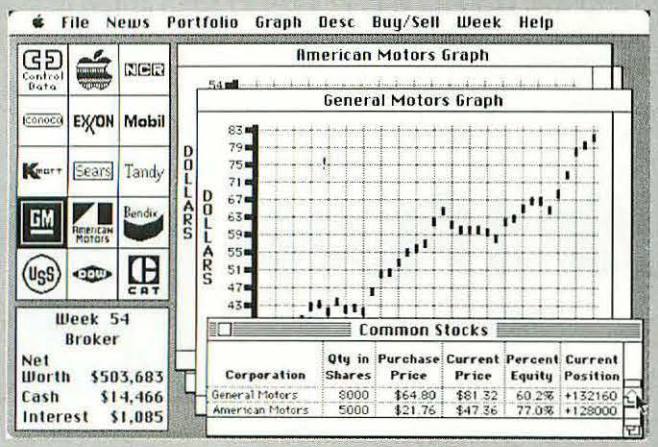
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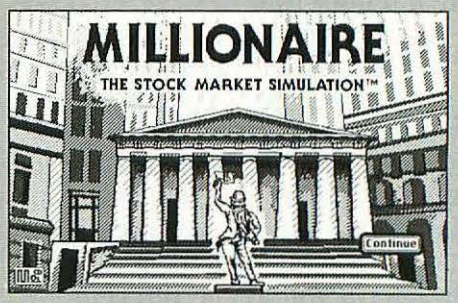
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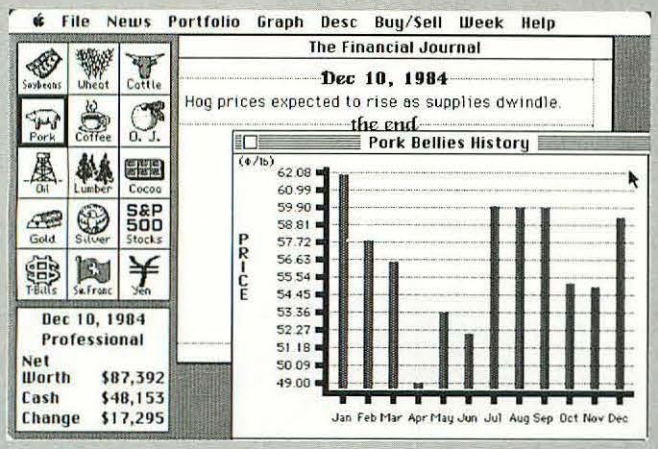
Games investors play!

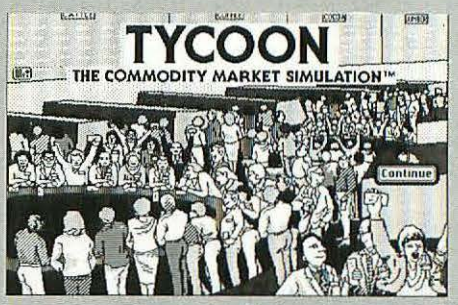
"...The games can be as logical, yet as arbitrary, as markets themselves. They are certainly not child's play."
FORBES, July 16, 1984



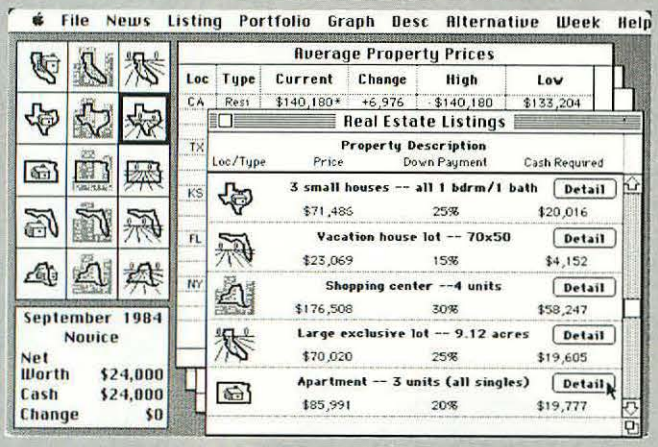


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F

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Palantir knows that if your Macintosh™ is to be fruitful, you must first conquer the keyboard. And for many, that means learning how to type. So, Palantir created MacType. It's the first typing tutor for the Macintosh to put to use benefits of proven teaching techniques that speed up learning. Simply, MacType uses mental patterning to reinforce manual exercises. It teaches your fingers and your brain rather than your eyes, and you learn more quickly. If one of your first tasks on the Macintosh is to learn how to type, think of MacType first.

A

ADVANCED

Palantir designed MacType to be the most advanced typing tutor for the Macintosh that is available today. MacType takes full advantage of Macintosh's flexible screen displays and the simple functioning of its mouse to teach you how to type. All the know-how that has gone into the most complex Palantir Software was used in the development of MacType. You're getting state-of-the-art technology even in this basic program. It takes advanced skill to create a fundamental program that is both fun and mental for the user. And you get MacType's advanced features at a price that is very competitive.

S

SIMPLE

Palantir has also designed MacType so that it is amazingly simple to learn and use. Because of the teaching principles inherent in the program, you will get up to an effective typing speed in a very short time. You can also use the skills you learn on MacType to operate any typewriter keyboard, not just the Macintosh. Compared to the other typing tutors, MacType will actually let you enjoy learning. You may like it so much that even after you've mastered its touch-typing technique, you'll go back to the MacType exercises to sharpen your skills and increase speed. MacType shows that working smart can be working simple.

T

TESTED

Palantir thoroughly tested MacType to insure that it will work for you. With it you will learn to type fast. MacType should be your first choice. It is based on advanced programming technology and is still simple to learn. MacType is another quality, "No Bull" product from Palantir. If you want to learn more, contact

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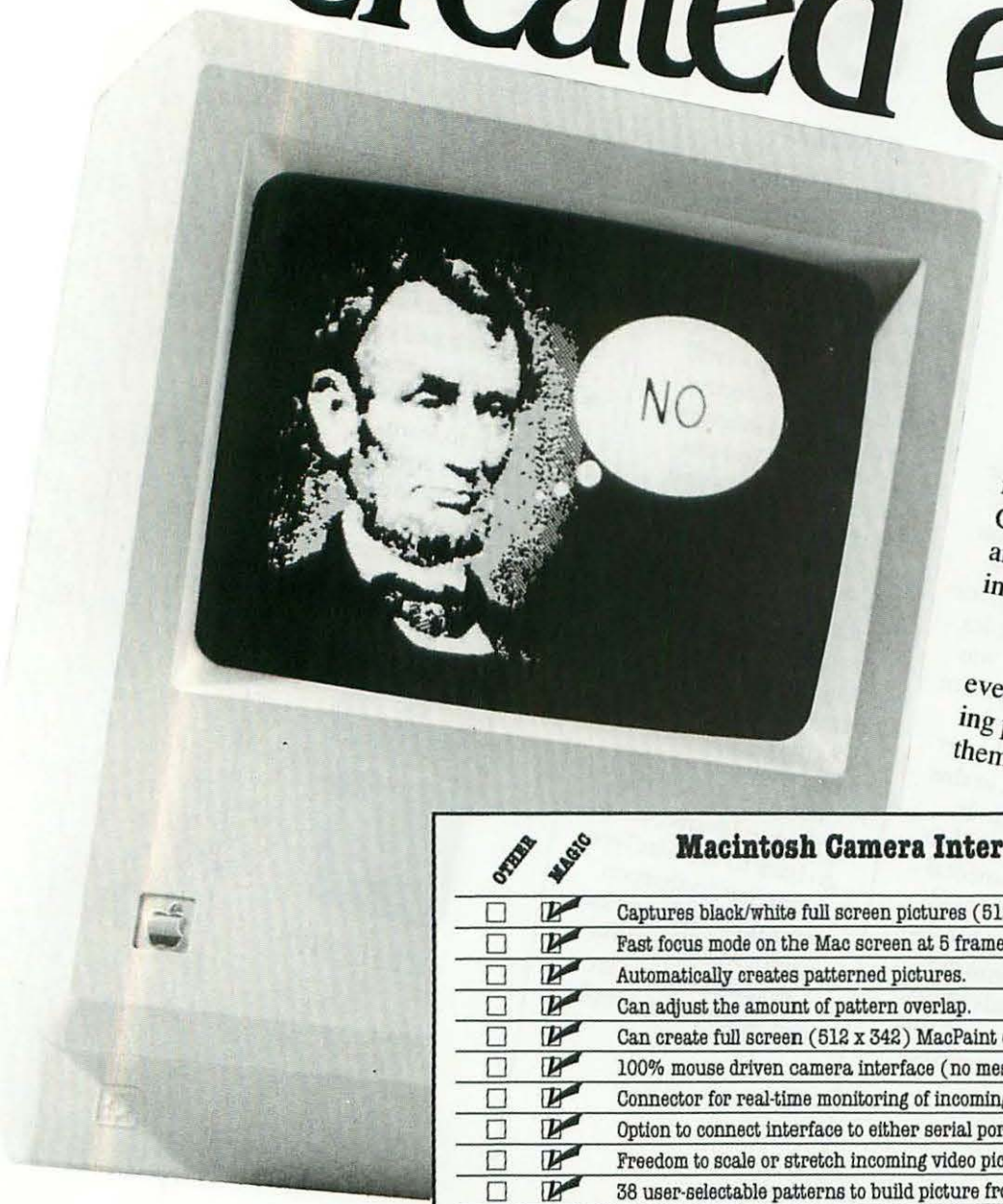


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You can use your camera or ours.

For one low price, MAGIC can give you everything you need to start immediately creating pictures and manipulating them with MacPaint.

oln was captured from
ill by the MAGIC camera
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ere created by MacPaint.

Macintosh Camera Interface Score Card

OTHER	MAGIC	
☐	☑	Captures black/white full screen pictures (512 x 342) in under .36 seconds
☐	☑	Fast focus mode on the Mac screen at 5 frames/second.*
☐	☑	Automatically creates patterned pictures.
☐	☑	Can adjust the amount of pattern overlap.
☐	☑	Can create full screen (512 x 342) MacPaint disk files in one operation.
☐	☑	100% mouse driven camera interface (no messy knobs or buttons).
☐	☑	Connector for real-time monitoring of incoming video signal.
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☐	☑	Can easily assign any intensity level to a specific pattern.
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☐	☑	2:1 scan interlace.
☐	☑	Camera supplied with 16mm f/1.6 lens.

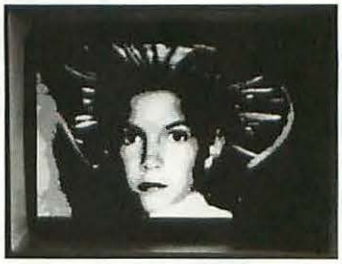
***A camera interface without a fast focus mode is nearly impossible to adjust without an external monitor.**

interfaces

Look at the versatility of the MAGIC camera interface . . .



Original



Gray Scale



High Contrast







Screen images shown as captured by MAGIC and unedited. *Old Town* is from page 133, Sept-Oct. '84 Macworld

Add MacPaint, and look what you can do . . .



Captured . . .



Edited . . .

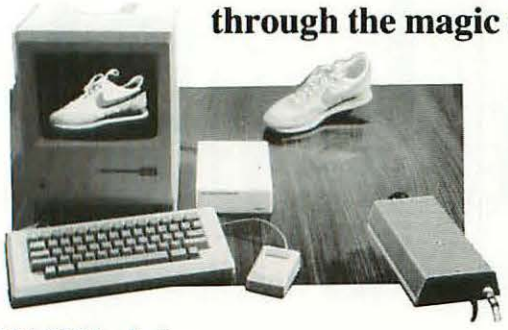


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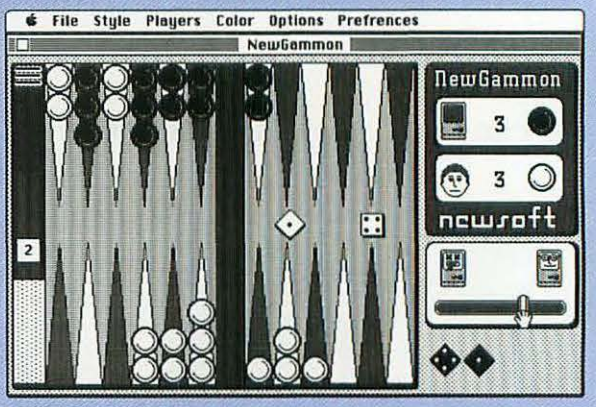
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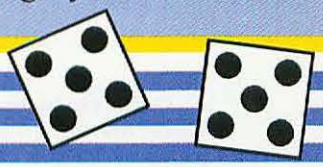
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Macworld Gallery

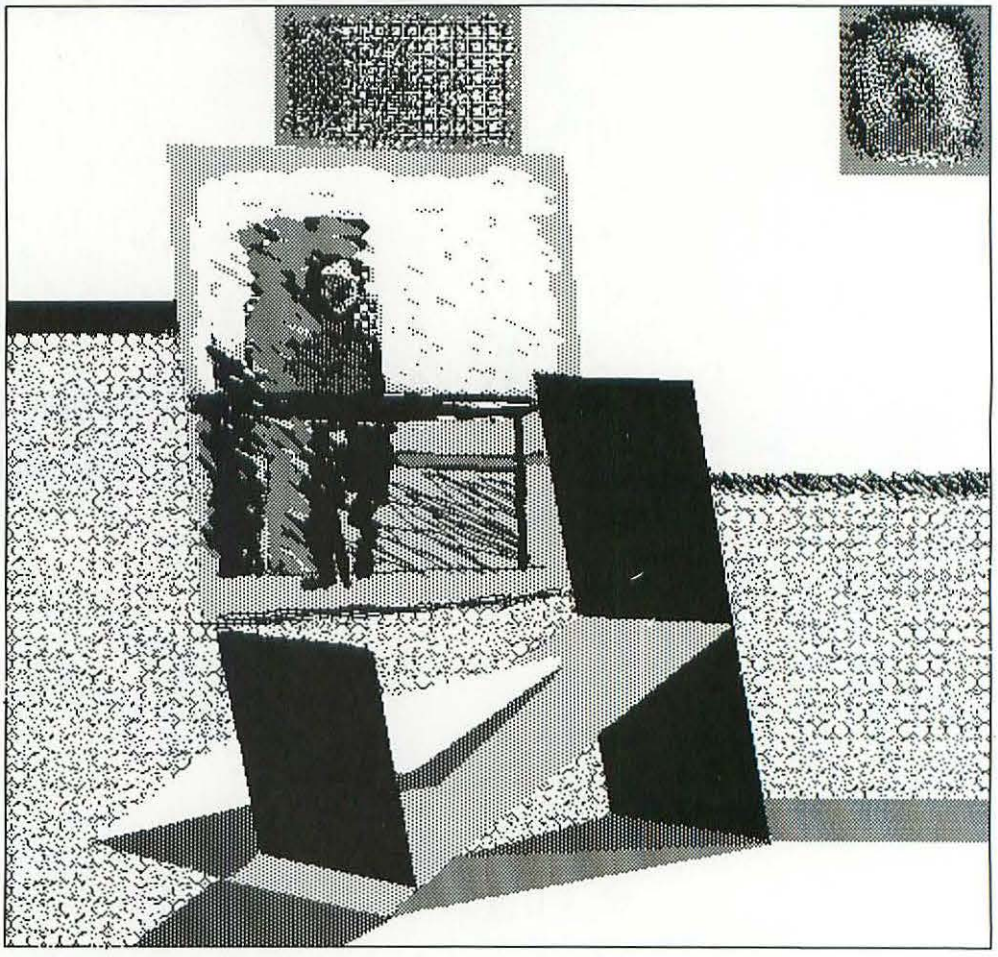
An exhibition of Macintosh graphics

Edited by Erfert Nielson

This month's Macworld Gallery *presents the winners of the first* Macworld *Art Contest (cosponsored by* Macworld *and Apple Computer). Our panel of judges will choose three winners each month and award a first prize of $500 and two second prizes of $250 each. The judges will give preference to original drawings, rather than to those based on photographs or other works of art.*

The December Gallery *also features a special exhibition of children's art, with a commentary by Neale McGoldrick, who is currently working on a book of* MacPaint *projects for children.*

All drawings sent to Macworld Gallery *are eligible for the contest. Send a paper copy of your artwork and a detailed description of the techniques you used to create it to* Macworld Gallery, *555 De Haro St., San Francisco, CA 94107. Please include your address and phone number with each submission. If your drawing is selected, we will ask you to send a copy of it on disk. All disks become the property of* Macworld; *winning drawings become the property of Apple Computer.*

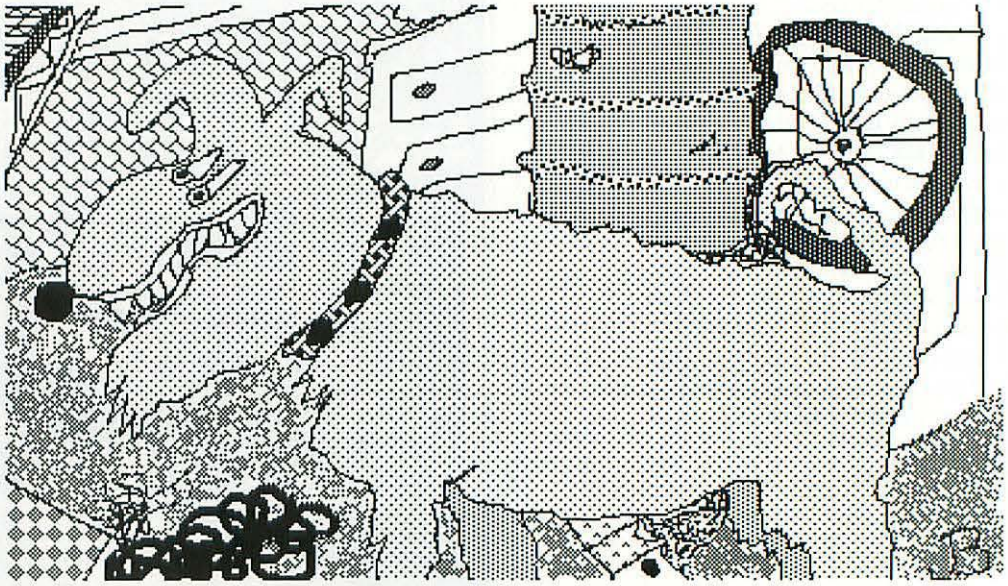


Composition with Bench and Mirror

$500 First Prize

Composition with Bench and Mirror
I began by creating the large forms—the bench, the mirror, and the shadows on the floor—with *MacPaint*'s filled shapes. Because the filled shapes lacked borders, I filled in the floor with the paintbrush instead of the paint bucket. I used the spray can to apply a second pattern over the floor pattern. I created the image in the mirror with the paintbrush, using three or four different brush widths. I produced the images in the background by spraying several patterns onto filled shapes, then used FatBits to clean up the untidy areas.

Keith Watanabe
Chicago, Illinois



Junk Dog

Junk Dog
I wanted a setting that would present a wide variety of textures, so I decided on a garbage dump. Then I added one of my favorite animals. I outlined the various shapes with the pencil and filled them in with the paint bucket, trying to use the best tone and shade for each section. The Undo command and the FatBits option were very helpful, especially since this was the first time I'd used the Macintosh.

Jamey Barnard
Chicago, Illinois

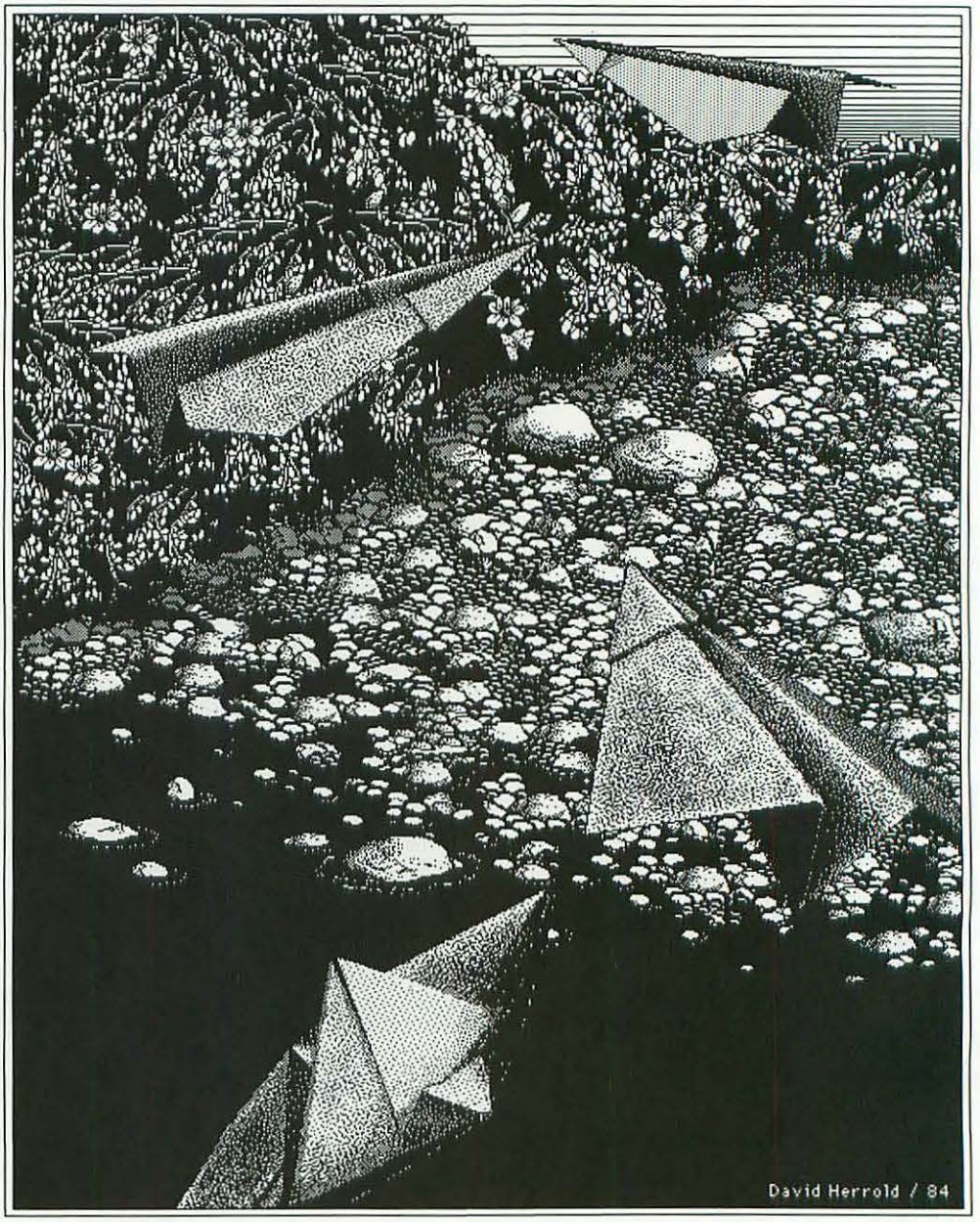
$250 Second Prize

Paper Airplanes

An overhead view of flying paper airplanes is not a common sight and lends an air of fantasy to my picture. I drew this picture partly because I wanted to make use of *MacPaint*'s editing features. When I work in *MacPaint,* I like to draw a background environment–in this case the rocks and bushes–and then paste objects created in a separate file into it. This allows me to experiment with the overall design and eliminates the problem of maintaining the continuity of background features that are overlapped by foreground objects.

Using the pencil in FatBits, I made four or five small rocks, then lassoed and copied them repeatedly to assemble a small area of the pattern. After I had created this area, I selected and copied it to fill a larger space. I used the same technique to draw the bushes. When the background was finished, I pasted in each airplane and moved it into position.

David Herrold
Greencastle, Indiana



Paper Airplanes

$250 Second Prize

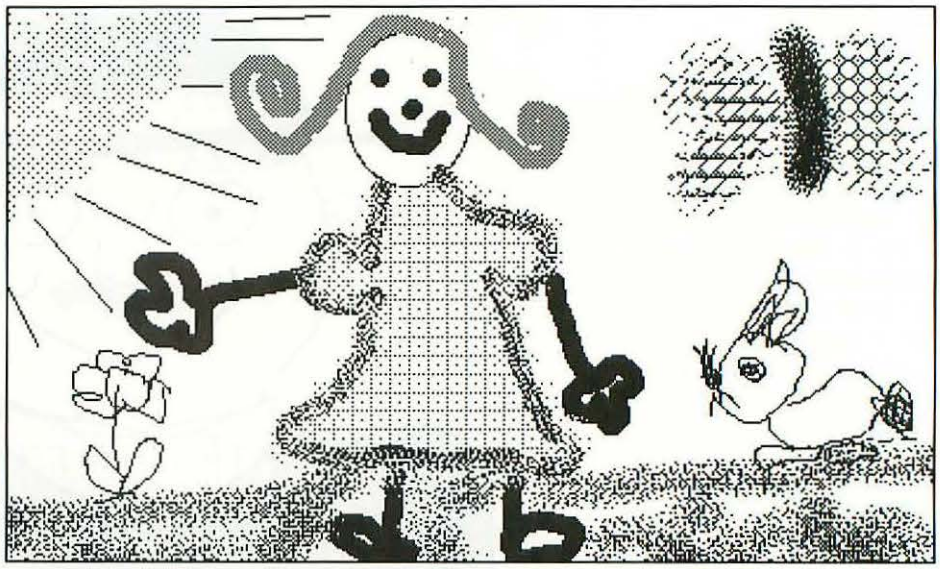
Children's Drawings on the Mac

The first reaction most children have to drawing with *MacPaint* is that it is "easy." Some teachers might insist that it is too easy, because children do not have to work very hard to get good results. However, learning can never be too easy if it gives children a sense of their possibilities and pride in their accomplishments.

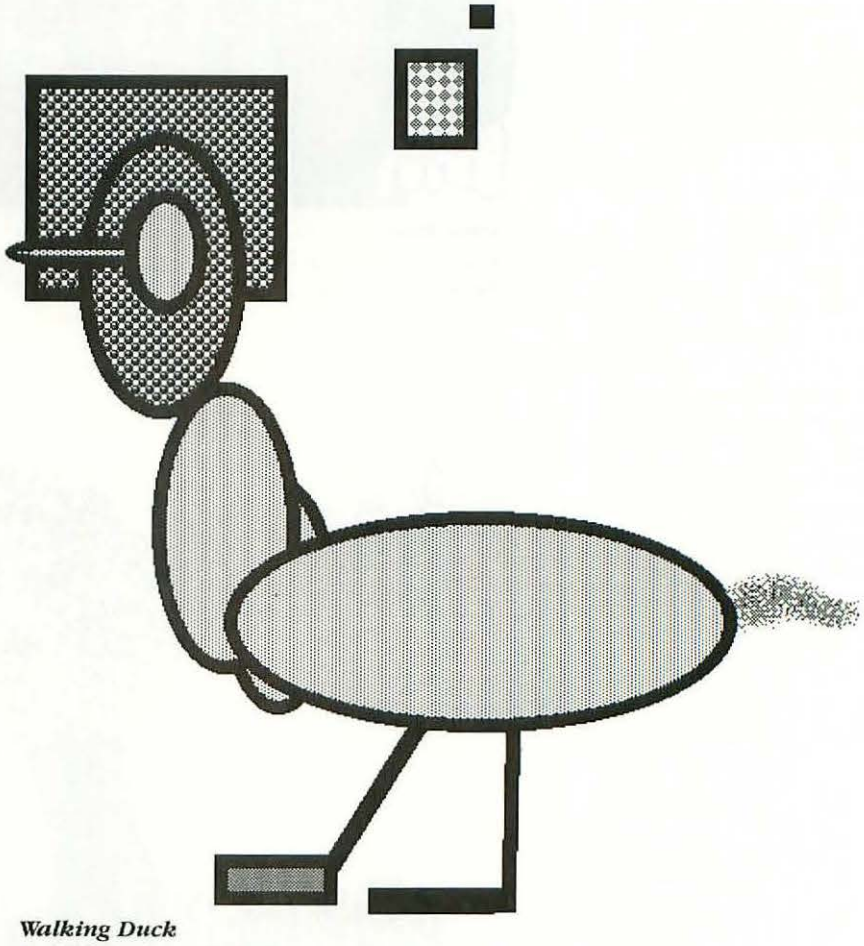
MacPaint is so enthralling that it might well be classified as entertainment rather than education. Nevertheless, youngsters can learn a great deal from working in *MacPaint*. Children as young as 3 or 4 can successfully control the mouse and create pictures. What is more, the drawings that children create with *MacPaint* are unique and personal in ways that drawings done with the Logo language rarely are.

Many adults feel timid when they approach *MacPaint*, not only because they feel somewhat anxious about computers, but also because they feel insecure about their artistic abilities. They are likely to find using the mouse more awkward than using a pencil, and they feel embarrassed when the sketches on the screen look clumsy.

For small children, using *MacPaint* is very different. Young children tend to draw with a whole-arm motion, so they find the mouse easier to hold than a pencil. Furthermore, they take great pride in



Missy and the Bunny
Missy Pyle, age 7
Austin, Texas

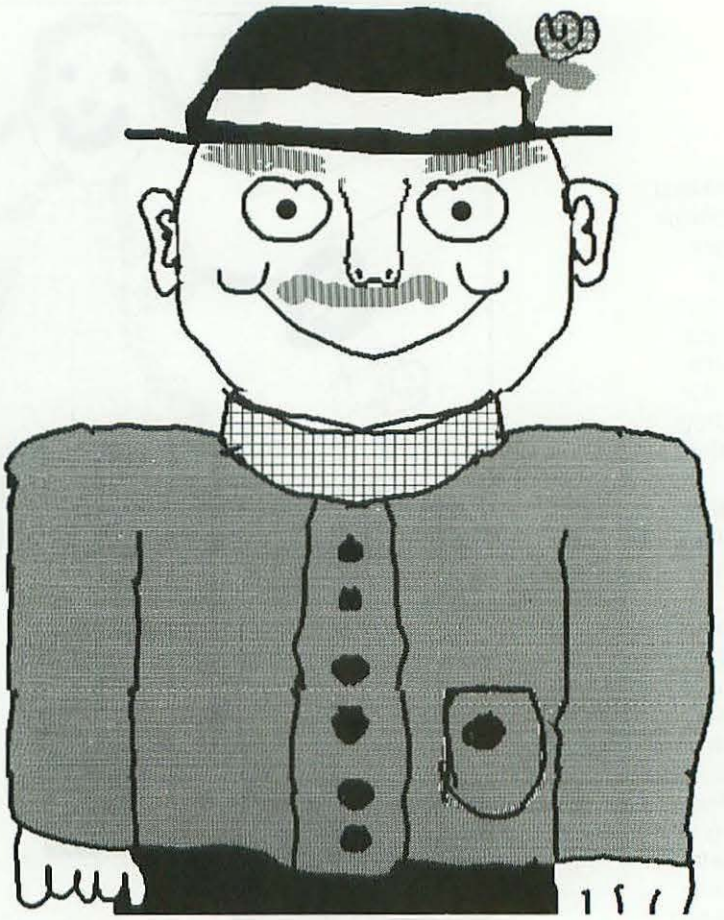


Walking Duck
Rod Wadsack, age 5
Chatham, New Jersey

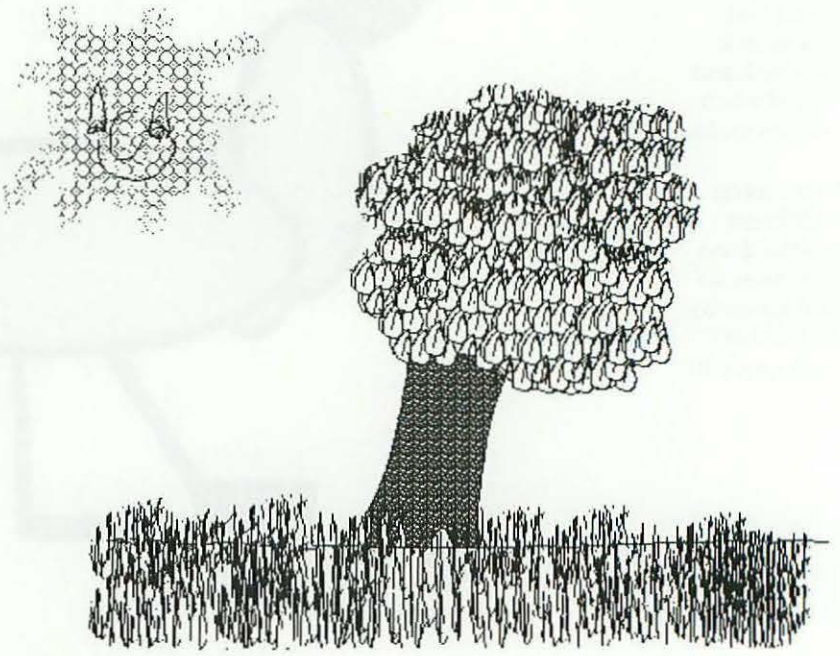
their results because their "scribbles" look neater and more finished on the screen than they would on paper. Some children's *MacPaint* drawings possess the strength and emotion of adult abstract art. One would be hard-pressed, for example, to distinguish between designs created with Brush Mirrors by four-year-olds and those created by adults in the same way.

MacPaint's greatest advantage for young children is that it allows them to explore design ideas that are more advanced than drawings they can produce with traditional tools. Children would like to create perfect circles and rectangles and keep patterns inside borders, but they have difficulty achieving this control on paper. With *MacPaint* they acquire this power, and they immediately respond to it by making sophisticated design decisions that one would rarely expect of much older children.

While Logo introduces children to simple geometric shapes–squares, circles, triangles, and polygons–*MacPaint* introduces them to other graphic possibilities. They can fill areas with patterns, reverse black and white elements, create custom patterns, and stretch, shrink, copy, and rotate shapes. Children are given control over a sophisticated art tool and allowed to exercise their own decision-



Derby Man
Stephen Howard, age 8
Chatham, New Jersey

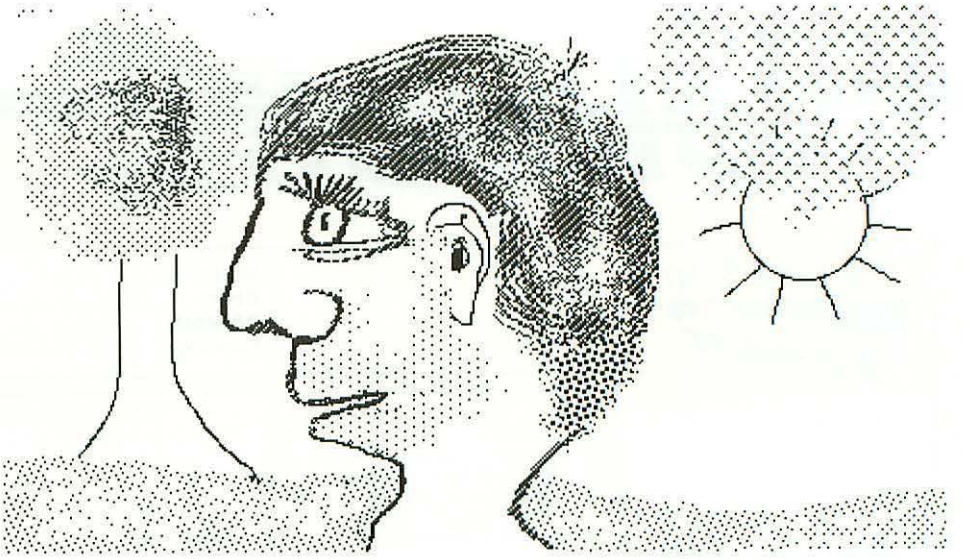


Computerized Nature
Krista Wark, age 10
Morristown, New Jersey

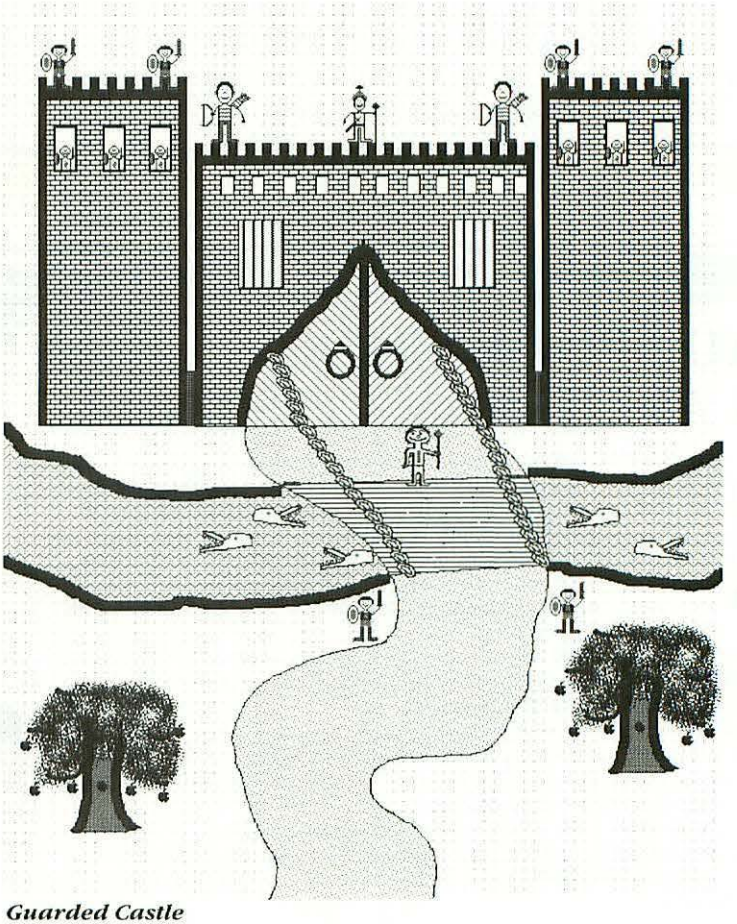
making abilities with just the press of a button. *MacPaint*'s features enable children to quickly sense the graphic possibilities of a page.

For small children, probably the most significant aspect of *MacPaint* is the Undo option. This option enables them to experiment and fix their mistakes. Undo releases children from the fear that if they experiment with their drawings they may "mess them up."

MacPaint may give older children the security to try out some graphic ideas at an age when they are otherwise very self-conscious about their artistic abilities. They may feel that their pencil drawings are too childish, but they invariably take pride in their accomplishments with *MacPaint*. The formality of neatly ruled edges, perfectly aligned lettering, and even tones gives their work a professional look that makes them proud to display it. □



Portrait
Alexander Southwell, age 12
New York, New York



Guarded Castle
Matt Simms, age 12
Franktown, Colorado

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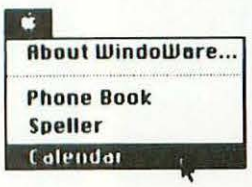
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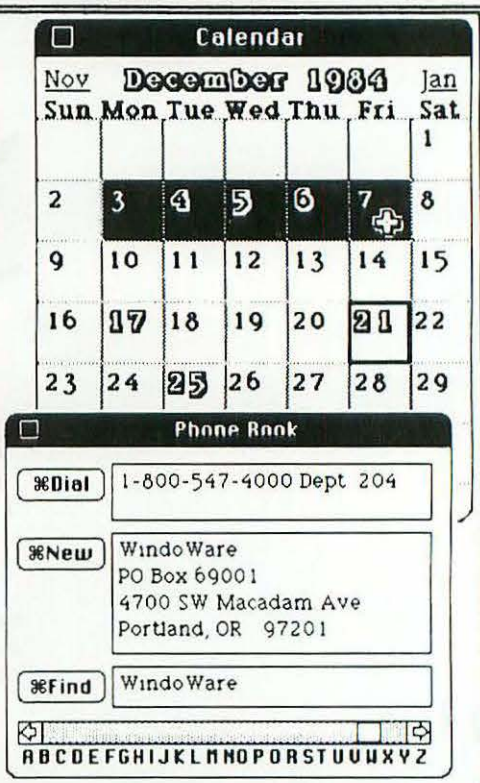
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Originally we published ***Hey, MAC!*** to give our customers updated information on new products and their availability. Friends with Macs started calling for individual subscriptions, so we give up—***Hey, MAC!*** is now available to everyone. You can order 5 issues of ***Hey, MAC!*** for only $10, and your subscription starts with the current issue. (Volume 1, Number 1 has sold out).

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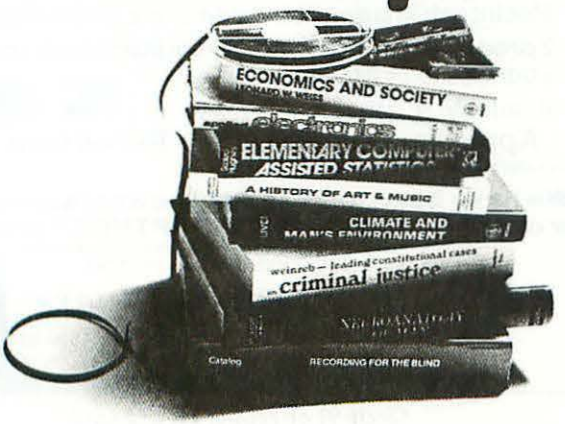
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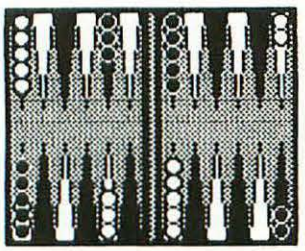
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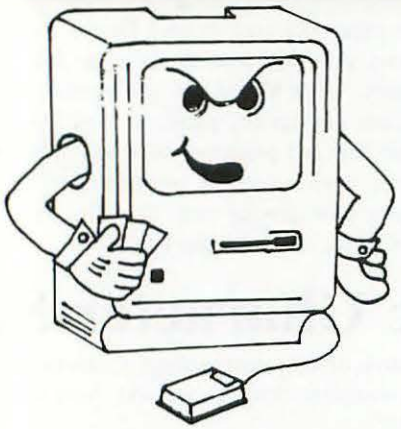
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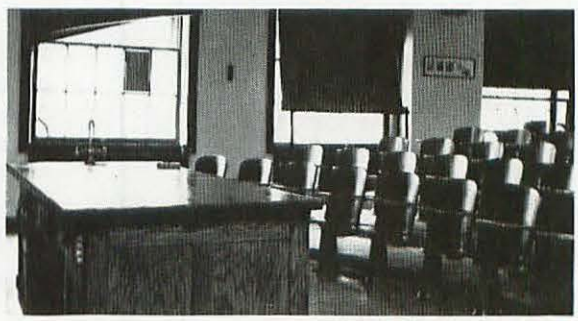
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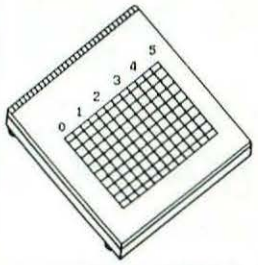


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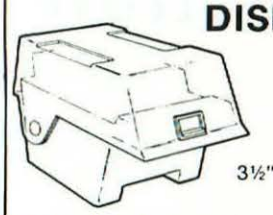


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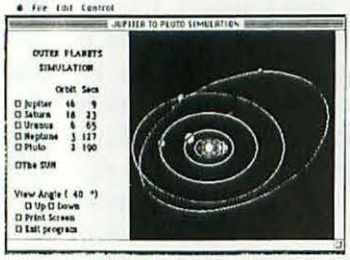
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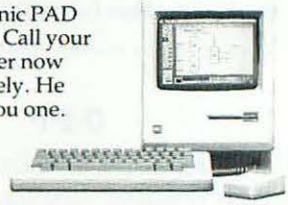
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